

**REPORT ON THE ISLANDS
OF THE
MERGUI ARCHIPELAGO
BY THE
LATE DR. HELFER**



DR. JOHANN W. HELFER
MERGUI, TENASSERIM PROVINCE
BRITISH BURMAH
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Report on the Islands of the Mergui Archipelago by the late Dr. Helfer
Helfer, Johann Wilhelm (Jan Vilém), 1839

Transcribed by Jim Potter
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History. Science (general).

ISBN 9781795746298

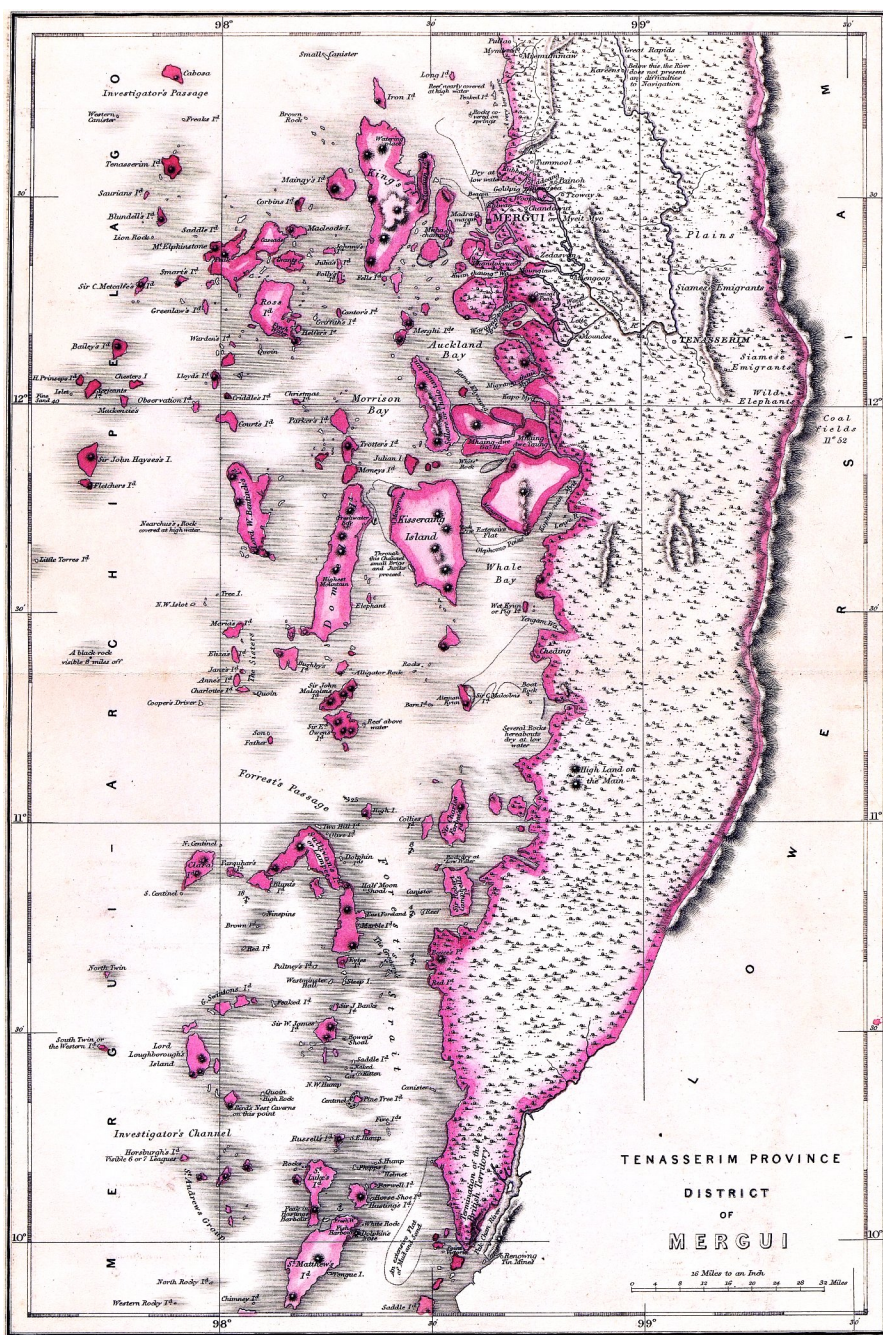
ASIN B00BK9WX1E

Published by James & Hook Books
Los Angeles, Alta California
jamesandhookbooks@gmail.com

James & Hook
B O O K S

Cover image: "Landscape near River Packchan above Bug Island, 13 April 1839," by Dr. J.W. Helfer.

Map image on following page: "Mergui District," from: *Atlas of the Southern Part of India, including Plans of all the Principal Towns & Cantonments, reduced from the Grand Trigonometrical Survey of India shewing also The Tenasserim Provinces*. Pharoah & Co., Madras.; J. & C. Walker, engravers. (Pharoah & Co.; London; 1854). Image scanned by the University of California Southern Regional Library Facility.



TRANSCRIPTION NOTES

1. Corrections or suggestions made by the initial reviewer in 1840 are enclosed in brackets with quote marks, such as ["Mergui"] or ["?"].
2. Suggested corrections from the present transcriber are enclosed in brackets without quotes, such as [Mergui]. Illegibility of a word is noted by [?].
3. Minor yet obvious errors made by the scribe were corrected by the 1840 reviewer (possibly Commissioner Blundell). He usually wrote over of the top errant spellings, apparently with initial amusement and later exasperation. The present transcription has followed these suggestions without further notation.
4. Dr. Helfer frequently wrote a word, "Layunes," that presumably meant "lagoons." At first, the 1840 reviewer corrected this into "Lagunes," then ignored the error. Following his lead, Helfer's habitual misspellings are noted initially, then ignored. Additionally, the unwieldy Burmese words for island—"kyun", 'toun', etc—received several attempts at transliteration that have been not been altered.
5. All other errors, including capitalisation and punctuation, are *sic erat scriptum*.
5. The beginning of pages in the IOR/F/4 document are noted in brackets, such as: [page 75]
6. The pages were not originally bound in order, with the first voyage beginning on page 56 of the IOR document. In this transcription they have been rearranged into chronological order.
7. An interactive web app tracing Dr. Helfer's voyages can be found at:

<https://helfer-in-mergui.com>

by Patrick Oswald & Jim Potter

Commentary and illustrations for the web-app are forthcoming.

IOR/F/4/1926/82649

P.G. 3261

D/t 12 – 1842

82649

Collection No. 53

Fort Williams,
Political Dept.

Para 266, Letter from the Governor General in Council, dated 14 January
1841, No. 1.

Report on the Islands of the Mergui Archipelago by the late Dr. Helfer
Examiner's Office.

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[page 1]

Extract Political Letter from Fort William, dated 14th January 1841, No. 1.

266. Recorded on our Consultation of the annexed date is a letter from the Commissioner submitting a Report drawn up by the late Dr. Helfer in the Islands of the Mergui Archipelago.

[side note]: Pol. 1840. Cons: 31st Augt. No. 72 / List No. 44

[page 2 is blank]

[page 3]

Extract Fort William Political Comm of 31st August 1840.
From the Commissioner in the Tenasserim provinces (no. 51)

To, [?]

Secy to the Dt. [?] of India Political Department

Fort William

Dated 17th July 1840.

Sir,

I have the honour to enclose Copy of a report drawn up by the late Doctor Helfer, on the Islands of the Mergui Archipelago. This Report would have been forwarded some months ago had not the Copy of the first half of it been lost in its transmission to me from Mergui, the boat by which it was sent having never been heard of [again].

I have the honour to be &c.,
Hon. Mr. E.A Blundell
Commissioner in the Tenasserim Provinces
Moulmein
the 17th July 1840

Report.

[I VOYAGE]

28th November 1838.

I had been ordered to devote this Season particularly to the examination of the Archipelago of Mergin, which is an accumulation of Islands of great extent, considering them as a whole without reference to their Political division. The Archipelago of Mergin ought then to begin with the Latitude of Tavoy joint [“?”] [point?] on the Tenasserim Coast, and end at the Northernmost part of Sumatra or Acheen head. It then includes the numerous Islands [page 57] off the Coast of Tenasserim accumulated the most in Latitude 9° 10° and 11° and decreasing in number gradually towards Penang; the Andaman Islands belong to it and the Western outposts, and the Nicobars the intermediate links of these Islands with Sumatra. The interval is more or less strewn [strewn] with Islands which evidently [“belong?”] to one, and the same system, as also the run of their mountains almost directly from North to South indicates that they are concatenated under water. They are a continuation of the main land of the North part of the Malay Peninsula, and are to be considered the main stock sending branches in preference towards the West side by a long extent, mean while it terminates abruptly towards the East or Gulf of Siam side which in [page 58] [this] respect it in miniature resembles the Cordilleras in America, with this difference, that the Pampas Llanos in America are dry land and here the plains ingulfed in the ocean. Like as the Main land of Tenasserim consists only of narrow Valleys divided by successive mountain ranges, so the submarine Valleys can be traced amongst the Islands, which of course, form the highest peaks of the dividing rocky ranges. The common appellation of the Mergin Archipelago designates the Islands of the Coast of Tenasserim extending about 170 Miles into the Sea to the West. This denomination is entirely arbitrary, and the proper limits to the South are not even defined. The St. Matthew group is still considered British, though situated beyond [“the!”] mouth of the Packchan, which forms the Southern most boundary on the main land. The Burmese affirm that all Islands as far [as] Penang belonged [page 59] in their time to Tenasserim; but as they never were a

maritime power, the Islands remote from their seat of Empire, and also the greatest part of them useless, the Siamese appropriated them, or they remained entirely unoccupied.

My first intention was to examine and to circumnavigate King's Island, opposite to Mergui, one of the largest Islands of the Archipelago, and on account of its splendid Bay considered one of the most important._

I started from Mergui on the 28th November 1838 in two Burmese Boats of the rudest construction. To the boats were attached two small canoes each with two paddles to be able to visit in calm weather rocks and rocky Islands which the unwieldy boats could not well approach. So equipped we had scarcely rowed two hours with the tide, when a wind arose, which forced us to seek shelter behind a Mangrove Island, to the West of Madrameran Island. The coast [coast] from Mergui to Lenya is low and a most antricate [intricate] labyrinth of Mangrove Islands. It is the dilta [delta] of the Tenasserim Lenya and some other Rivers which in itself is unimportant yet have covered a great extent of Country with muddy deposits upon which the Mangroves attracted by the brackish water is rooted with never yielding tenacity.

The accumulation of these Islands gradually and constantly, though imperceptibly augmenting is protected by the outer Islands which contribute to convert the inner waters into a kind of never perturbed Lake, in which the mud deposits quietly. This deposit is probably not only formed by the earthy substances carried from the Main land, but to it must be added the lighter particles in suspension transported by the flood from the outer parts into these inner channels. In some centuries several of the Mangrove Islands will be connected with the Main land, and if no violent revolution changes the face of the Country, in some thousands of years an area of many square miles will be added to the Main.

A peculiar species of the order Cruetaa [*Crustacea*] a crab is a main instrument to the elevation of Mangrove Islands. It erects mounds to the height of several feet for the purpose of securing its livelihood. In the middle of these small hillocks it leaves a perpendicular hole of one or two inches width. [page 60] When the tide rises the waters penetrate with force into this artificial whirlpool, and carry with them numbers of diminutive sea animals which caught in this trap are then with leisure divoured by the artificer. When the crabs hole is filled with mud and

rendered useless for the purpose, another is thrown up; and in every lower Mangrove Island hundreds of these hillocks are daily erected by these industrious workmen which continue to elevate the land by degrees. It is a very slow operation of nature, but a certain one, The Mangrove Islands are scarcely penetrable, the Mangroves growing on them so thickly that scarce a room for passage is left, and their roots form a closely interwoven network of most fantastical shapes. The larger kinds displace in time the slender species, and sew a numerous progeny round them. This accounts for certain species only being found exclusively in one locality in which they do not suffer any other. The old trees cannot withstand the attacks of shells [shellfish] who soon extinguish the remaining signs of life, and take possession of the inside, lining it with calcareous passages.

The Mangrove Islands are a desolate region. Few animals live in it. All is silent about. The Sandpipers and Curlews tread the ground at low water, the Herons sit pensively on the Margin, watching the rise of the waters, and numerous kinds of Kingfishers piercingly searching through the solitude as they pass by in their glittering attire along exist in them._

They divide the empire with one species of monkey (*Oreopithecus*) particularly found on ["fond of?"] shell fish, who descend in numbers at low water, and hold their repast on the beach, digging shell fish out of the mud, and opening them dextrously by crushing them on rocks or on trees. All these Mangrove Islands are without use at present except supplying firewood and posts for building houses, some pieces growing straight up, are cut by the Natives and used for poles to train upon them the Betel pepervine. Sometimes the bark is used for tanning fisher nets._

The great quantity of tans which nature has produced, made me examine this bark and I found it yield more than the best oak bark of a detringent ["an astringent?"] principle. The parts of the tree near to the roots contain it in great quantity.

Making a strong decoction of the bark it can be precipitated with lime for the purpose [*page 61*] of diminishing the bulk, and rendering it fit for exportation. If ever such be found answering the bark could be peeled off. The trees dying would be replaced almost as quickly by plants. The number of trees covering all the inner Islands between Mergui and Lenya is so great that it is even impossible to guess it.

29th November._

The sound of oars awoke me in the morning and I found ourselves on the edge of a thick Mangrove forest working against wind and tide, it blowing harder than yesterday and the waves washing with violence the roots of the Mangroves. At one place where we found elevated land and a hut upon it surrounded by a small plantation of Arecas; I endeavored to land but we could not well effect it and so continued to row, soon after found ourselves close to a small Island with a sandy beach covered with high trees on the Western side of which we landed, and I gave to the people time to repose and to cook their breakfast._

The Island was divided by a channel half mile of breadth from King's Island, and leads pursuing the Southern course, as I subsequently ascertained, into the channel of Pareghuim._

The wind gradually abated, and permitted us to proceed, after breakfast we crossed the channel and proceeded along the East of what in Ross' charts is called Plantain Island, which however is now ascertained to be part of King Island, united with the high land of that Island by a Mangrove belt._

The Coast near the Northern point is bold and precipitous and consists of granite as much as I could see, for the agitation of the waves did not yet permit me to land with the small canoe. In a Nook we saw one more small plantation consisting of Cocoanuts Arecas and Plantains._

At two o'clock we arrived at the entrance of Kings Island bay which is situated in the North part with Iron Islands to the N.W. of it. A bar accumulated round the rocky basis of a low small rock called Lyo [Lys] Shoal shuts in in part; and leaves entrances on both sides Kings Island Bay is one of the first harbours on the East side of the Bay of Bengal, if not the very best, Its breadth is about 4 miles where it is the broadest; and its utmost length something more than 6 miles. It includes several small islets, and small Islands are scattered in it near its bottom._

On the Southernmost side the bay loses itself in a Langune ["Lagune?"] [lagoon] dividing into several branches, forming numerous Mangrove Islands. The shores are chiefly at the entrance [*page 62*] bold and the mountains descend rapidly towards the water edge. It will be easily perceived that this Bay is capable of harbouring numerous fleets, and that the Vessels will ride with perfect safety at anchor in it, for not only is it shut in from all except the North side but the sea to the North of the Bay itself is already sheltered by the Chain of Islands to the North

(Iron and Tavoy Island) which are, properly speaking a continuation of Kings Island and the Lyo [Lys] Shoal, at the entrance protected it still more efficaciously. This Lyo [Lys] Shoal could be converted, if ever it were wanted, into a most powerful Fort Battery rendering the entrance on both sides perfectly impassible.

We arrived towards the Evening at the bottom of the Bay, and landed on a small sandy beach.

The people were afraid to enter the Jungle in search of firewood on account of tigers which are said to be very numerous, and very dangerous in Kings Island. This fear of Tigers of the Burmese upon all the Islands at the same time that they do not care about them on the main land may be well founded, for it is very probable that the Tigers have not that abundance of game upon the Islands which they have on the main land, and that they are consequently more dangerous. Scarcely that the Sun was down the people entreated me to enter the boats for safety's sake, they pulled about two hundred yards from the shore. At the anchor drop and remained there the night._

30th November 1838.

In the morning we continued our Voyage, I wished to ascertain in the first instance whether Kings Island and Plantain Island are united, some of the people who knew the place affirmed from the beginning that Kings Island and the so called Plantain Island of Captain Ross were one and the same.

We entered the labyrinth of Mangrove, I measured the depth and found it on an average at low water from 2 to 3 fathoms. The main channel had at first a width of about 100 yards but narrowed after two and three turnings dividing into several channels. The aspect of the low Mangrove banks was so uniform that my guides missed several times the road. In such cases the channel soon narrowed so that the branches touched each other, and impeded the progress._

After about 2 hours rowing, having passed through narrow Channels and arriving again in a broader one which seemed to be the Chief, I was given to understand that we were [*page 63*] near a small village, I gave orders to stop there. The people had some difficulty in discovering the landing place, nothing but mangrove trees being visible at length they entered a narrow creek and b[r]ought me on terra firma I ascended about 30 yards and formed me [found myself] in an areca plantation. Soon after,

a venerable old Burmese came to welcome me and conducted me into a Zayat which was erected chiefly for Poonghys or priests who occasionally visit the place, to pray with the family and to implore blessing upon the undertakings of this man. In a corner of the Building were upon a kind of altar placed several gilded idols of Gaudama before which recent offerings of flowers were placed (chiefly Amaranthus.

I went soon after to see the neighborhood, the old man of the place accompanied me. There were three houses each surrounded by a plantation. I ascended a cleared Hill from which Paddy had just been reaped to have a view of the Country. I saw the whole Valley before me. The Lagunes [lagoons] were invisible for the whole bottom was overgrown with mangroves. As far as the eye could reach I could not perceive any separation of Kings Island from Plantain Island I was rather surprised to find so much jungle cleared, for I thought from previous accounts I gathered in Mergui that it is scarcely inhabited. Both sides of the Valley were cultivated with Aracas [arecas] mostly plantations not yet bearing and laid out since the British occupation.

The Plantations thrive well though the ground did not seem to be particularly fertile. The soil was a feregueuns ["ferruginous?"] clay. The rocks about consisted of Pudding Stone conglomerate. As the Upper part of the slopes is considered improductive only a narrow stripe above the mangrove region is cultivated.

The friendly Burmese was very desirous to show me his plantation. He said that he cleared and cultivated this spot for the purpose of selling it to attars ["others?"] and then he would begin to clear a new spot. He had altogether about 1,000 Areca palans ["palms?"] besides Durian and Mangoostan Trees.

He conducted me to a spot and shewed me as a great rarity one Nutmeg Tree inclosed by a Capacious fence

He considered its possession a great progress in civilization._

I found in general that the Burmese are not averse to improved modes of cultivation, and that they want but encouragement to be brought forward.

[page 64] No Nutmegs introduced in the southern parts (and these are but a few hundred) have as yet produced fruits but the people have heard from their friends who had an opportunity of visiting Penang that they are highly remunerating and they are very desirous of obtaining young plants for which immoderate prices are demanded by the Chinese

who introduce some annually._ Were they provided gratis by Government will young plants they would be soon spread over the Southern parts of Tenasserim._

I was highly delighted to see the worthy old Burmese family assembled in the evening to prayer. He had fifteen grand children assembled, they chanted till late in the night, behaving with great decorum.

1st December 1838.

A second Village I was told was situated at the end of the Layunes [lagoons] I wished to go there by land, but was told that it was impracticable the Country being too much intersected by Nullahs communicating with the Layunes._

I proceeded therefore by water, the Channel narrowing gradually and has as yet 1 ½ fathoms deep at an average. After several abrupt turnings the boats could not proceed any longer I went int[o] the canoe and landed soon after and entered again a Zayaht serving as a store house for Idols of different size and from amongst which one of Alabaster of pretty good workmanship. It lay at the verge of the mangrove belt and behind it extended some not inconsiderable Areca plantations

These palms thrive luxuriantly the people said too well for they last not more than 15 or 20 years, the general term of productiveness being counted thirty years.

The Areca palms have several enemies to contend with, the most destructive is a Balte ["beetle"] of the family of a ["?"] Calanda which bores in the soft parts near the top a hole through the tree, to deposit there its eggs. This causes a wound and a nmulagenous [?] green like substance exudes copiously. The part nearest to the wound begins at first to rot and finally the top of the tree wanting a support tumble down and as palms when the top is destroyed always perish, the tree is entirely ruined. The Natives affirm that only certain localities by this beetle and that it [page 65] is very difficult ever [even?] to find the Beetle or perceive its ravages till it be too late. The cocoanut is also attacked by another species of Calandra in the Southern parts of the Peninsula. In Singapore scarcely a Cocoanut can be brought up I am told. This enemy is not known in Tenasserim.

The Bombay Ereodendon [*Bombax eriodendron*] unpactiasum [?] is much cultivated by the Burmese in their plantations for several purposes.

It grows very rapidly so as to obtain a height of 20 feet in two years and is then destined to give shade to the young plantations which however cannot be considerable, as the branches growing at a right angle from the trunk are only sparingly covered with leaves, and these are deciduous. The inside of the tree is spongy, and when young the pithy matter is boiled, and used as food. It yields a gummous substance which amongst the Malays is considered to possess medical virtues. Probably that is a different species from that known on this coast. The Chief reason that no plantation is found without some Bombay ["?"] may be its yielding a species of the silk Cotton which the Burmese use to fill their cushions and beddings and certainly the mattresses made from it are the coolest and most agreeable in ["in?"] a tropical climate remaining for a long time even and smooth care must then be taken if used, that they are well cleaned from the oily seed which is one of the favourite food of the numerous rats in this Country, these perforating in a short time the beddings.

From America and India the silk ool [wool?] has been sent several times to England for the purpose of manufacturing it into cloth but the texture has been pronounced too loose.

On Kings Island live at present thirteen Burmese and three Carean families. The greater part of the plantations belong to some wealthier Burmese in Mergui who do not cultivate themselves; but send their debtors to take care of the plantations.

On Kings Island on the same place where now the plantations are an old Town is said to have existed formerly, and it is affirmed that the Island was once very much peopled. This was the case with some of the other Islands in the archipelago; Ketheraing is mentioned particularly as having produced great quantities of rice. They are now all uninhabited as we know so little of the History of the Country [*page 66*] and the people in the Provinces do not possess written records, had only vague traditions the time and the races inhabiting these parts must remain for the present unknown. Should the ["ever?"] the Archives of Ava and Bankok be opened it is not improbable that this vacuum is ["in?"] History would be filled up. The remains of Pagodas on Kings Island as well as on their ["those?"] Islands are yet to be found and not far from the Zayat in which I was lodged, I found masses of Acoriae ["Scorioe?"] [scoria]. Though I did not find on this Island beds of Iron yet the numerous Pudding Stones impregnated with Iron prove their existence and vicinity.

The fact of Iron having been smelted in this place ["proves?"] that

the inhabitants were more advanced in arts and civilization than they are at present, for not one of the very numerous iron beds throughout the provinces is worked by the Natives, and it seems that they are unacquainted with the process of smelting the ore. I walked through the plantations and found them very much neglected Almost every thing is left to the care of bountiful [?] nature. The aracas were surrounded by high weeds which sprung up during the Monsoon. The people were just returned from Mergui where they stopped the last six month now to watch the crop of repening arecanuts hanging in bunches of 30 to 60 partly yet green partly already tinged with an orange color the sign of repeness They employed their time in cutting the weeds with the dah or Burmese knife, almost their only instrument of agriculture nobody cared to root out the weeds or to loosen the soil. The decaying appearance of the fragile houses showed that its inhabitants were only temporarily tenants of the demands [lands?] and that they did not endeavor to repair it being not their own. The cleared grounds on Kings Island seem to be well adopted for the cultivation of the Sugar Cane, and if ever any body would be inclined to pursue it in this quarter it would not be difficult for him to get the lands from the Burmese at cheap rates. The plough could be there immediately introduced for the stumps of the trees are all decayed and nothing but grass and some minor shrubs cover the fertile plain in the Valley There is no want of water. A Mountain Torrent fed throughout the year by springs traverses Kings Island and discharges itself in Kings Island Bay in the Layunes. [page 67] It is inclosed in narrow beds between rocks, and if ever Mills were to be established in the neighborhood of Mergui this seems to be the best located ["ion?"] for dikes could be easily excited ["erected?"] and a channel to lead off the superfluous water made. It is said of this Torrent that in the height of the monsoon it precipitates its volumn of water with such impetuosity that its fall is heard at Mergui at a distance of about ten Miles in calm weather.

It may be supposed that the accumulation must be at that time very considerable as Kings Island is throughout mountainous and the torrent before arriving at the Layunes has to penetrate its way through a narrow valley resembling more a chosen ["chasm?"] in the mountains. It takes its origin at the South West part of the Island descending from the highest Mountain called Kappa taung. That formerly more has been cultivated than at present is proved also by the numerous abandoned Plantain plantations, to be found on the slopes of the Mountains amongst the

decayed trunks of the felled forest. The Plantains if left to themselves deteriorate annually and produce finally a fruit which is very diminutive, full of seeds bitter or tasteless, and only sought after by birds and monkeys.

These plantains do not permit any other vegetation to spring up except a species of *Alpuna* [*Alpina*] which in lower grounds is always met with, together. As plantains yield a very great quantity of Potash it would be perhaps no bad speculation to burn these tracks [tracts] down, and to extract from the ashes the crude potash. The soil in which they are growing is very rich, and if it were to be employed for animals tobacco in the first instance promises to grow there the best. I made an excursion round that ["?"] the base of the Mountains, and found the rocks to be primitive consisting of granite with much decomposed feldspar, the mica took the appearance of large foliated talc; in some parts the granite alternated with guies ["gneiss?"] Numerous small rivulets at this season all filled with water descended from the Mountains and united with the above mentioned large torrent.

I made a good collection of plants never met before with and amongst these three species of palms in fructification.

2^d December

I intended to make an excursion into the interior of the Island today, [page 68] and to ascend, if possible, one of the high mountains and to have a view of the Country. Nobody of the Burmese in the nine houses scattered about professed to know any thing of the interior, but they went in search of a Carean, and brought in about two hours a man who was well acquainted with all paths and ascents. It was a poorly looking specimen, who was even by the poor Burmese servants considered an inferior being. This is the common idea of all Burmese who treat the Careans as an inferior race. The latter never saw good days in this fine Country. They were doomed to Slavery by the Burmese, and before these by the Siamese, and though British laws have proclaimed a general liberation and equality of all races, it will be too late for the Kareans, they will gradually die off in accordance with the eternal law of gradation [degradation?] : the mightier suppressing the weaker. They are a weak race, stamped with the signs of decay by nature, an old nation which has gone through its phases like all nations are destined to go, and they will disappear from the earthly stage like hundreds of nations before them,

and like them we will decay, and perish in our time. This man knew all parts of the Island, unfortunately that he could scarcely make himself understood. With him and some Coolies to cut the road we entered the forest. It was a pity that ["the?"] Islands had no Elephants. I wished them much always there, for on the Main they are capital road builders; so we had great trouble to penetrate through the underwood and the creepers. Coarse grained Granite with prevalent Mica was the formation and in the higher parts, there was scarce any earth, and the most splendid forest Trees rooted in the rocks. The ascent was very steep and we were on the top in about three hours. It formed a kind of plateau saddle and I had great difficulty to get a view, I ordered to hew down five very large trees, these crushed the smaller ones underneath, and I got at last a kind of look hole, with a view to the South East. The great labor of felling the hardwood, and the advanced time of the day prevented me to do more. I saw nothing of King's Island but the narrow low neck of what was formerly called plantain Island, beyond this the inner Mangrove of [and?] Mountains running from North to South, and a part of the deep Valley through which the main rivulet of the Island runs, which bears the name of Thein Khainug. I measured afterwards the mountain with Thermometer dipped in boiling water, and found it to be 1950 or 80 feet high. We were obliged to return the same way and reached the Zayat at sunset._

[page 69] One great annoyance is experienced immediately after the Monsoon by a species of Aearus [Acarus?] with which a person entering the thick woods is certain to be soon covered. These animals are so minute that they are not perceived when no attention is paid to them. Last year being yet unacquainted with them I felt [a] few days after the beginning of my excursions on the Attaran a very uncomfortable sensation produced by itching, pain over the whole body, which permitted scarcely any rest in the nighttime; not knowing the reason I continued to suffer until my Burmese servant made me attentive that I had these ticks. I perceived them on my Skin of [as a] Mass of minute brown points which turned out to be these animals firmly attached to the Skin. Neither water nor soap could disengage them, I was obliged to have many hundreds separately extracted. All the places which they had fastened themselves got sore afterwards and suppurated slightly. The marks were visible after eight months._

If the same day removed they are quite harmless. A strict scrutiny

when bathing is recommended to every one who entered at that season the forests as well as instant change of Clothes._

3^d. December.

In the Morning I waited until the tide would suit to pursue my examinations, I had a visit from the Burmese who is the great owner of the plantations. He wished me to make or write to him a charm of some other incantation, perhaps he means that prosperity might follow his undertakings. I was, he reasoned, the first European who ascended the valley from which the chief rivulet descends, and where the Chief nats [*nats*] and spirits reside (I think he meant those of some of the inhabitants of the old Town once built here) and he seemed to conclude from this circumstance; that I do not fear either the nats or that I have some power over them. He entered into the theological buddistic explanations of which I did not understand a word knowing very little of the buddhistic doctrines of Metempsychosis, and too little of the language. The American Baptist Missionaries in this Country, some of whom are well versed in the dogmatical part of the Burmese creed, could give important information about these matters interesting to the Historian and Philosopher. The old Burmese would scarcely believe that I could not comply with his wishes myself having got amongst the people the reputation of being a Magician and an alchemist probably because they saw me occupied with all [*page 70*] sorts of animals, plants and stones.

Digging amongst the scorioe [*scoria*] of iron scattered in the neighborhood of the Zayat. The people thought I was searching after hidden treasures, and I am convinced that after my departure the whole place was turned over by the inhabitants of the Village. I think I understood him to say that a particular bush the berber fruticosa of Roxb: were the guardian of their Ancestors. This fine bush with lovely red flowers resembling Vinea Rosea is always found in the neighborhood of Pagodas or Khaiungs. It is imported from Pegu and seems to propagate spontaneously. I suppose the American Bixa Orellana abundantly introduced, is also a shrub connected with some religious rites; it is partly cultivated in gardens growing spontaneously in the neighborhood of Moulmain and Tavoy, I do not know if the Burmese make much use of the dye [which] the Children amuse themselves to smear the color over their bodies, and I think the Poonghies do it also on certain occasions (yellow being their sacred color).

The flood having risen (it being spring tide) close to the Zayat we brought our [boats] which were laying all the while on the mud, again afloat, and descended the Mangrove Channels until we found ourselves again in King's Island Bay. I ordered to pull close in shore on the Western side of the Bay. The shores are steep; we entered several small Bays or inlets most of them are dry at low water, and there is scarcely any available site for building or plantations. From the narrow small valleys descend rivulets and at the height of the Monsoon the water must rush with great impetuosity down. Rounded fragments [and] boulders of granite rocks form walls at the base of the mountains. We proceeded from one inlet to another until we arrived at a projecting sand bank covered at high water. A small Rivulet descended from the mountains and seemed to come from the highest Western stock of Kings Island visible six or eight leagues distance in clear weather._

This was the place called French watering creek and where the French fleet halted [?] in the last wars against the British, stationed on the Eastern side of the Bay of Bengal, for the purpose of intercepting the India Men trading to China.

Numerous are the stories of the Frenchmen which the elder Burmese inhabitants have to tell of them.

I had one Cooly amongst my followers who said he saw the vessels. They [*page 71*] were the first European men of war which approached Mergui. Nobody had seen such great vessels before. The population of Mergui flocked to see them and the white strangers. The French wanted provisions and these were brought out to them to Kings Island. They never came to Mergui or went along the coast inland on the place, where I landed they erected it is said a kind of Stockade or Battery, perhaps a mere dépôt of which however no vestiges can be traced except a small mound on the left side of the creek of which I am unable to tell, whether it be the remains of an artificially erected ramparts, or debris washed down from the Mountains and accumulated there. It is thickly overgrown with Brushwood. Chain cables it is said are to be seen at low water and calm weather at the bottom of the Bay in this part, of which I saw nothing, and great treasures are hidden under ground says the current story the Burmese like many of the Asiatic people with whom concealment of property is customary are addicted to the search of hoarded wealth, and believe implicitly all the marvellous narratives which are connected with the Treasure containing localities. My people like

hundreds certainly had done before them, rummaged the whole place over, and would have continued so in the Evening had not the shrill piercing voice of the Tigers in the vicinity driven them back to the sea shore.

The Western side of Kings Island is said to be the most dangerous in this respect and several well thriving Durian gardens had been abandoned on account of Tigers.

4th December

We left today Kings Island Bay, and began the circumnavigation of the Island. The coast runs chiefly in the direction of S.W. by W. We passed through the Channel which separates Kings Island from Iron Island which latter is entirely uninhabited Iron Island is four and a half miles in length and about a mile in breadth and consists of the saddle of one mountain with abrupt declivities [declivities?] on all sides. I did not visit it. Why Captain Ross gave it the name of Iron Island is unknown. The northern coast of Kings Island possesses several shallow Bays with very little water, several of the inlets seem to be available for cultivation and notwithstanding the positive assertion of the people that there are no inhabitants on the Western part I saw a solitary hut peeping out of the forest and some [page 72] young arecas and Cocoanuts springing up near the seashore._

The timber is in many parts of the northern coast [coast] beautiful and the largest trees are growing sometimes on large rocks.

Though in general the wood on the Island does not attain the enormous size to which it attains in the interior of the northern parts of Tenasserim, I think yet that it is not improbable when wood will be exported from Tenasserim that the Islands will be chosen on account of the facility of transport on the declivities towards the sea, the trees can be so felled that they fall almost in the water and when bound into rafts can be transported in calm weather or shipped. The variety of lumber trees is great but some of the best and most common on the Islands for Ship building belong to the families of Dipterocarpiaceae [*Dipterocarpus*] and Euphorbiaceae [*Elaeocarpus*]._

The Hopea odorata [*Hopea odorata*] or the Thingan, the favourite wood for Ship and boat building amongst the Natives and Chinese is however scarce amongst the Islands. I observed amongst the timber trees today the Berberis Ammonilla [*Berberis ammonilla*] which yields the

celebrated Trincomalee wood in Ceylon. We landed at 3 o'clock in a small shallow Bay not far from the north and Western most point of the Island. At a small distance I saw two isolated rocks which I wished to visit to collect shells it being near lowest water I went into one of the small canoes with two Burmese boys

The sea was perfectly smooth but scarcely had we rounded a projecting small cape than we felt ourselves in an agitated stream carrying us with impetuosity out into the sea. The waves grew every moment higher and began to enter the Canoe the unremitted bailing saved us from swamping. With unremitted labor my two men paddled towards the nearest land this being a small Island of about half a mile in circumference. The stream carried us close to it but we could not effect a landing, and were driven out into sea to a similar and last Island, where we landed quite exhausted the Canoe, half filled with water It is the tide which rushes with such impetuosity through this Channel as well as through that to the north between Iron and Tavoy Island of which I was then not aware, but which I might have known if then possessed of Rosse's Charts who indicated the current and the numerous eddies.

I was obliged to remain dripping wet on the rocky Island until [page 73] the tide turned, which fortunately happened in about an hour but there was scarcely any slack tide, and the flood rushed in with equal impetuosity. I permitted myself to be driven on the first best part of Kings Island fastened the Canoe and began to work the way towards our encampment before it grew quite dark. We had unfortunately but one dah, and could with difficulty penetrate through the many branched *Thispesia* bushes and thorny *asalpenus*. My people hallowed and the others heard it on the opposite side, and came with daps [*dahs*] and torches to our assistance. Fortunately it was only a narrow neck of land which brought me soon to my Boats the two Burmese thinking perhaps not wrong, that we had a narrow escape. Vessels & boats with contrary winds would perhaps find great difficulty to pass through these channels during the height of the spring tides and the French Vessels anchoring in Kings Island bay must have been well acquainted with the currents and the rocks in this passage.

5th December 1838

I came today round the Westernmost point of Kings Island beyond which following the coast the course is almost due South. The aspect is

Mountainous several small bays are visible and also some small Valleys or rocks [nooks?] in general however the aspect is more rugged than on the other sides. The sea must beat violently against the shore in the Monsoon, in some parts the cliffs descend nearly vertically and several recent rents show that the action of the sea must be unceasing.

I landed several times when the surf permitted to examine the formations.

The people worked at the oars till about 3 o'clock in the afternoon when we began to look out for a place with water to stop but water seems much scarcer on the Western Coast than on the other sides probably because the mountains descend precipitously.

Though we ran in successively several small Bays we could not find any water and landed finally in a small Isthmus and all rested under a big tree on the seabeach the people were obliged to be content with a scanty supply of water for cooking their rice which yet remained in the Boats.

I saw that they had recourse to a particular contrivance to useless ["use less"] water. They collected a number of juciy [juicy] vascular plants chiefly a *Manyanthus* like plant [*page 74*] with stems ["stems?"] filled with a pithy pulposus matter and they boiled this with the rice To render it more tasteful they added the tender leaves of a species of *Bergera* (*Koennigii*?) which I saw them use before on several occasions to season their curries and which has an agreeable aromatic slightly pungent taste.

On the same spot grew also *Cocubes* ["*cocculus*?"] *indicus*. The Burmese are well aware of its deleterious properties. They saw that when these seeds are dried pounded mixed with garlic thrown upon charcoal and then held in such a way that the fumes ascend over a sleeping person and are ["inhaled?"] the person becomes like dead with stupefaction.

It is not improbable that this may be the *sacret* [secret] of the Chinese robbers entering homes and taking all valuables away without the persons in the house ever awaking or hearing any thing.

A similar case happened a short time ago in Mergui where the property of a person fastened round his waist was detached ["without?"] his perceiving it or any body else though he slept in the same apartment surrounded by his family.

They collected some of them to catch fish or for some other purpose I do not know.

We were obliged to retire early into our boats on account of the sandflies being very troublesome. This plague is only to be found near the

seashore or Rivers as far as they are exposed to the influence of the Tides. These small animals seem to breed in the mud or the seabeach in low mangrove grounds they are the worst. In the day time they lie hidden under the foliage but an hour before Sunset they began to appear and after sunset they are unbearable: There is no resisting them on account of their number. Their stings are painful but the moment the animal is removed it ceases, unlike the bite of the mosquito. The Natives suffer most from them because they are not clothed and fear them more than the mosquitos to the bites of which they seem to be inured. The only means of defence is to be enveloped in a dense smoke which keeps them at a distance. A strong breeze carries them also away for the same reason a strong wind for ["from?"] the sea carries them sometimes far in land where they otherwise are not found.

During any excursions on the sea shore, and amongst the Islands it was never possible to remain on shore long after sunset. The best means were to push from the shore and to cast anchor at some distance for the night so we did [page 75] today.

6th December._

The people were under weigh [way] early in the morning and anchored to the South of Maingys group in a small Bay where there was good water and plenty of fish so that in 10 minutes all people were provided with the cast net There happened an accident of which I never heard before. The man who cast the net, and stood in the water knee deep was at one time bitten in the thigh so violently that he fell down and was carried on shore by the others. The small toe was nearly severed. I did not see the animal but all Burmese affirmed it was a small kind of turtle or tortoise which attacks one in water and would bite severely. I made an excursion inland with the intention to ascend one of the high peaks of the Island in this quarter, but after four hours toil was obliged to give it up, the mountain being on this side scarcely accessible, and the intervenient ravines filled with the large thorny Rattans render the ascent next to impossible. The thorns of this palm cover the ground and pierce deeply the naked feet of the Natives. It is always cruel to force them through such localities I returned however with an ample collection for my herbarium.

The people begged to pass over to a small rocky Island about two Miles distant in the sea there being no sandflies and a fine sandy beach. The Island was a rock about a quarter of a mile in circumference covered

however with trees like every spot in this Country bore high waters marks. On the sandy beach above mentioned were seen the remains of a recent visit of Seelongs that remarkable race of wandering fishermen of whom I shall have later opportunities of speaking. A small shed, a pole and old fish spear, and numerous remains of smoked fish, some wild roots were the remarks ["remnants?"] of their visit. As well as the leaves of fern a species of *Osmunda* strewed on the ground forming a bedding upon which the society slept. A man with a little imagination thrown by accident upon which the rock could have fancied the numerous large fish heads to be human skulls and like Robinson Crusoe thought that he fell upon the remains of a tribe of Cannibals. I took the trouble to count the number of Plants growing upon the rock and found that they were near fifty. How different from the Keleng [Keeling] or Cocos Islands where Mr. Ross has established himself and where the whole recently published flora did not consist of more than I think seventeen kinds. The most [page 76] common tree upon this rock was a species of *Sterentia* [*Sterculia*?] now in flower. There was besides one tree I think of the family of which had just shed its leaves the Burmese greeted it with joy peeled off large pieces of bark and eat with chunam and tobacco instead of Bettle nuts._

7th December

We reached this morning the Southernmost point of Kings Island and entered what he ["is?"] called outer Channel of Perrygioun. Boats desirous to go to the South West pass through it; junks however and larger European Crafts coming from the South, go to the North of Kings Island before they turn into the Harbour of Mergui.

The Southernmost point of Kings Island situated exactly in 12° - 20' Lat forms a rocky promontory.

Pophyrirs alternating with green Stones and intersected with veins of black limestone are found there, also a small view ["vein?"] of apparently independent White Stone or Erite. I[t] was impossible to penetrate far into the interior, there being scarce room for footing on the rocks. He [We] arrived next at Perrygium, a small Island less than half way to Mergui from the Southernmost point of Kings Island. There is a Village on the Island and some cultivation. The Chief occupation of the inhabitants however consists in fishing some Malays also are settled here, who go out to sea in dry season to collect sea slugs. Not far from the

Southern most point of Kings Island is the Keppa Toun, the highest mountain as the people say. A few houses are situated at its base called Keppa Agna; where some fine growing areca plantations exist. I crossed over to that place with the intention to ascend the high mountain. Desirous of getting a guide all people agreed that it is from this side inaccessible. Knowing these assertions to be in most cases mere excuses, I began followed by my own people the ascent above, but entering the forest and obliged to follow the course of a mountain torrent it led me after many turnings in a contrary direction upon another Mountain separated from Kappa tounge by a Chasm of at least 800 feet depth.

I measured the mountain and found it 1740 to 70 feet high. How far I approached near the summit of the Keppa tounge. I do not know as it was impossible to gain a glimpse through the thick highest forest. One of my people ascended a high tree but could not see the Country.

[page 77] I returned late in the Evening to Pereghun where I passed the night

8th December.

The neighborhood of Pereghiun is rich in Iron. There is opposite the Village a small rock in the channel which produced a middling quality of iron stone and on the Island itself probably are iron beds.

We started from Pereghiun and entered soon a new labyrinth of Mangrove Islands, which however are not altogether low, but the mud accumulates round a nucleus a solid rock. I landed on two of these Islands, called Mazunpa. They are well known in Mergui as containing the most extensive Areca Plantations which yield already fruit and which are the property of an old enterprising Burmese woman in the Town. The most interesting to me to find an extensive bed of Iron on another Island divided by a channel of about a hundred and fifty yards from Mazampa. The whole Island seems to be composed of it, and massive blocks are protruding on several places. It is one of the richest ores in the Provinces. I think only inferior to that at Tavoy and that on the Ghyne River in Amherst province. It is important on account of the neighborhood of Mergui (two hours distance) when the Coal depôt is established in Mergui the iron ore transported in boats or on rafts to the Town iron foundries could be erected in the port of Mergui fed with coal or if wood be preferred the quantity of fuel easily procurable from the surrounding low Mangrove lands could equally well be used. Though the Tavoy iron

ore is excellent and in a good locality I think yet that this Mergui locality is still preferable on account of fuel being still more easily obtainable.

I arrived towards Evening in Mergui and thus completed the first exploration in the season.

[II VOYAGE]

11th December.

I left Mergui this day, continuing the examination of the Mergui Archipelago intending to visit the Islands to the South West of Mergui. They are not all indicated in Captain Ross' charts. The recent labours of Captain Lloyd will render is ["us!"] acquainted in a short time with the first survey of them.

I proceeded through what is termed the Southern Pereghiu channel and landed at a small Island that belongs to the Ma aing group as the Burmese term it.

[page 78] All these Islands are surrounded by Mangrove belts and form little Hills, these being the nuclei round which the Mangrove accumulate and increase. Their formation is similar to that of the Pereghiu Islands and vestiges of the occurrence of iron are throughout apparent.

The oldest and best areca plantations are here to be found and it is said that these plantations were laid out there in the Burmese time for the reason that thus surrounded by Mangrove belts the authorities should remain ignorant of their existence._

The Keuper sandstone occurs there in fantastic shapes the strata turned up sometimes vertically sometimes in undulatory shapes or variously contorted, the different strata alternate with some veriens ["veins?"] of Argillaceous moisture which forms a strong uniting cement.

12th December.

I started in the night, and passing several minor Islands to the South of Pereghiu arrived at the considerable Island of Meeiguy tounge from which name it is supposed that Mergui derived its name amongst Europeans : to the Natives this place is only known by the name of Beik. Meiguy tounge is not surveyed by Captain Ross and only its highest peaks indicate: it is ["of"] considerable extent and like the greater part of all Islands consists of a main ridge of mountains running in the chief direction from N. to S without plains with but insignificant Valleys. It is entirely uninhabited._

Landed in a small sandy Bay where a small rivulet fell into the Sea and made an excursion into the interior. Not many paces from the shore a large double horned Rhinoceros sprang up which lay in the mud of the Rivulet. The entering flood carrying sand and other deposit along had stopped the free egress of that rivulet and behind this barrier formed a pool filled with humus and decomposing substances. Such places are the Chief support of the Rhinoceros which like the Buffaloe and the Elephant is found [found?] to lay ["lie?"] in the mud probably to ward off the attacks of Mosquitos *Oestrus* *Tabanus* *aeari* and a host of other animals which infest it unceasingly on account of its skin being bare or scarcely covered with hair.

How these Rhinoceros come upon the Island is a question difficult to solve [page 79] they are found upon all larger Islands such not excepted that are more than thirty miles distant from the main, they could hardly have crossed the water that distance and this part speaks much in favor of the geognostic theory that these Islands were detached from the main at a period when these huge quadrupeds were already created It must be observed that no Elephants are to be found on the Islands, tho' they are very common on the opposite terra firma.

The Natives know only of one Elephant on the Island of Kitherin and the same animal is affirmed to have existed there two centuries ago when the Kitherin was inhabited. If it be true that it may have been brought there as a tamed animal, which survived the depopulation of that Island and if it be the same Elephant it would be a corroboration of the many assertions that Elephants live several centuries._

The question amongst Naturalists as to the real existence of an Asiatic distinct species of a double horned Rhinoceros should be revived no more, for it is the most common of all these species existing in Tenasserim and abundantly different from the African to entitle it to the rank of distinct species. It is easy for every resident in the Country to procure double horns still united in the skin for the moderate price of from 8 to 15 Rs and these singular horns would be still cheaper, were they not esteemed a valuable medicine in China and as such exported from Mergui.

13th December 1838

Left during the night and landed in the morning upon a small Island called Kara town.

The sea shore on the Island was streived [strewn] everywhere with large blocks of partly argillaceous partly pudding and iron stones containing iron of from twenty to forty per Cent

The East side is chiefly covered with these blocks which are sometimes twenty feet high. To the north is a Sandy beach where the ground is almost colored black by iron particles, the Island itself is small (one half mile in circumference about) slightly elevated and like all covered with wood._

On this Island, as well as in almost all others grows near the sea shore, a species of Diospyros in abundance, a tree about twenty feet high with extended branches

[page 80] The centre part of its wood furnishes a good sort of Ebony which as yet has been turned to no particular use. Whether it be inferior to the Mauritius or Ceylon ebony will be determined by comparison. There are several kinds of Ebony in the Country, one of which is a tall erect tree, resembling Roxb: Termentosa [*tomentosa*], but is another The fruit of some of the species of this genus is covered with a dowing ["downy?"] bark including when ripe a yellow pulp, which is eaten by the natives and tastes gummous and insipid._

Much more useful appears to be the bark of the berry which contains a considerable proportion of astringent matter which could be used for tanning purposes. Millions of these fruits could be collected annually

The Monkeys eat it and throwing the outer bark away, Masses of it are seen on some part[s] of the sea shore which coming in contact with the sea water become jet black.

From Kara Island we passed over to Kalo Toun Island, the Southern part of which is situated almost due East from Kara toun, but about three miles distant. It is an island which attains about 15 Miles in length, mountainous, the highest peak about 800 feet elevated. Its formations are equal with those of Meiguy toun of which it forms a part undoubtedly united a few fathoms under water.

I made an excursion into the interior, and found the same Monotony of the forest; was however recompensed by a rich botanical harvest.

The Island possesses numerous hogs, deer and elk, and is feared also on account of numerous Tigers. The natives smell this latter animal at a great distance and know to indicate its haunts in this way. After traversing for a time the wild of this Country, an European acquires the same faculty. The smell resembles that of Menageries in general but only in a lighter degree

Mention must be made of a tree which grows in abundance in this Island, and is rather rare to the north of it, which promises to be useful in future. It is a species of *Terminatia* [*Terminalia*], a large tree with extended branches, at this season covered with numerous small white flowers which possess a most disagreeable odour. This Tree produces galls of various shapes generally not larger than a full grown grape which sit upon the large broad leaves in great number, and like all galls are the work of an insect depositing its eggs within the parenchyma of the leaf, and of which grows this morbid [*page 81*] excrescence. These galls possess the same properties as oak galls. Whether they are the same as those occurring in South India, and which are used there by the Chintz painters for yielding a good yellow, I am unable to determine.

14th December.

I continued my course to day towards the East, and came soon into a labyrinth of Mangroves._

I was obliged to land on account of the strong currents which run in a Westerly direction through the channel on the South side of Kalo toun; and render if the tide ["is?"] unfavorable, the progress next to impossible. The Islands of the Mergui Archipelago form in my opinion five distinct mountain chains which run parallel in a direction from North by West to South by East.

The first inner or Eastern most is the region of the Mangrove Islands, low Hills in general seldom exceeding two Hundred feet in Height, round which the alluvium accumulates in preference, a tract of Country full of narrow winding Channels partly filled out already with deposits.

The Second A continuation of the ridges on the main, ending at Tavoy point and continued towards the South in Tavoy Island, Iron Island, King's Island, Meiguy toun, Kalo toun, and Kitheraing (of the Southern part mention will be made afterwards.

Third ridge Doun Archipelago the unnamed Island to the north of Domel, Domel itself Sir J. Malcolms Sir Edward Owen's Island (main stock highest part Domel

Fourth ridge Cabosa, Tenasserim, Blundell, Lloyds, Lord William Bentinck's Island (main stock. Lord Wm. Bentincks Island.

Fifth ridge The outermost Islands – solitary peaks above water in connection under ground, possessing all equal uniform formation H.J. Prinsep, Sargents, Sir John Hayes Fletchers Island and the great Western

Torres (central stock point apparently Sir John Hayes Island) These ridges are broken in many parts, and form in this way the numerous Islands of the Mergui Archipelago. Through these intervals are channels which divide one and the same ridge of Mountains, the tide rushes with impetuosity at new and full moon, and causes a great waste of time when obliged to pass at an improper hour. The art of navigation through these numerous channels consists in being well acquainted with the direction in which the tide flows. Though this appear to be very simple it requires yet [page 82] practical knowledge, for the water flows in one and the same channel, and a different direction in its extremities, and is then of course stagnant in the middle Cross Channels which have separate communication render chiefly amongst mangrove Islands, the maller [matter?] still more intricate. The Mangrove territories are the region of Oysters attached to the rocks covered with mud. At low water they can be collected in whatever quantity desired. The species occurring here are large oblong and broad, and belong to the species *Osticum parasiticum*. They are much sought after by the natives, and considered a delicacy but are to Europeans too large to be relished. The shells are used in preference by the Natives for burning lime which they use in ["?"] [chunam?] [. E]edible Oysters I never found attached to the mangroves as related by several untars [others] upon India, they are invariably and solely upon rocks. After the rush of the tide subsided, we proceeded through the Mangrove Channel and landed towards the Evening on the North Eastern point of the great Island of Kithereng.

This Island though now entirely destitute of all fixed population is said to have been once very important, crowded with Villages, the greater part of the soil converted into fields yielding a superior quality of rice, which was exported to the neighboring Countries. Whether the truth or at what time this was the case, and what was the reason of the total disappearance of the population we possess no means ["to?"] elucidate at the present day. That the Island was inhabited is proved by the numerous remains of Pagodas to be met with in different parts of the Island. Kitheraing seems indeed to be peculiarly and in preference to all other Islands fit for rice cultivation; it is the only one known amongst the hundreds constituting the Mergui Archipelago which contains considerable plains, and the ground seems to be very rich. In my opinion, Kitheraing could become for Mergui Province what at present Beeloo Khiung is to Province Amherst, the rice granarium._

The neighborhood of the Island is famous for the immense number of fish which migrate into the inner Channels to deposit their spurm there, in millions.

Some people resort thither at the beginning of the dry season for the purpose of fishing; Their fisheries are however conducted on such a small scale; and in such an imperfect manner that it scarcely merits to be mentioned.

These paltry establishments even are of a but recent date, the people formerly did not [dare?] to go a few miles to the South of Mergui fearing the Malay pirates which are said to have chosen the neighborhood of Kitheraing in preference as a rendezvous during their predatory excursions._

[page 83] 15th December 1838

After having examined superficially part Kitheraing continued my course to the South East, but made very little way on account of contrary winds and tides. Burmese boats go with the wind very fast (capsize however easily) against tide and wind they are far inferior to the Malay Praus of the same size as what respects the art of navigation they are in every point inferior to the Malays and it may have been for this reason that having always had few chances to escape when in conflict with Malay Pirates they gave up contesting further dominion of the Mergui Archipelago in their time.

The Mats of Pandanus which the natives in the South East of Asia as well as the Chinese generally use instead of [sails], are a cheap substitute for canvas ["130" ?] and after all not so immanagable and perishable as it might be supposed at first sight they seem at any rate preferable to the transparent loose cloth which the Indians use, their chief defect is their immoderate bulk. We landed at Oaukpho the Southernmost promontory of one or several Islands girt every where with Mangroves. To the South of it is the Bay and entrance of Lenya river which Captain Lloyd intends to denominate whale Bay, on account of his having observed several of these animals. I have never been so happy to see any during my peregrinations amongst the Islands, except once to the South of the Elephant rocks near Domel. What Captain Lloyd saw and thought to be the great Balena mysticatus seems rather to be the Bhysetes Macrocephalus [*Phiseter macrocephalus*], the great whale seldom and ["wd?"] venture into such shallow water, as is found in this whole bay, this being on a average

certainly not deeper than ten fathoms it would only happen by accident when driven by an enemy, and it is very probable that the great whale would wreck itself in this case.

The great Mangrove Island territory which extends fifty Miles in length and about fifteen breadth from Mergui to Lenya, can be said to terminate at Ouk pho, To the South the sea is more open the intervals between the Islands wider, the Islands steeper, the main more elevated so that the congenial sphere for Mangrove growth ceases. Lower down or what is called the group of Roye [Coye/Koyay? See entries for 22 January and 25 March], another but much smaller Mangrove territory begins, of which latter mention will be made.

[page 84] **16th December 1838.**

Passed from Ouk pho over to water Island a small rocky Island at the mouth of the Lenya River dividing it in two branches.

It is so called on account of several good springs oozing out of the rock at low water, being overflowed, and salt at high flood.

Shortly after the occupation of the Country by the British an affray took place at this Island where the Siamese had a stockade ["stockade?"]. They were easily driven back and the Stockade demolished. Since that time no inhabitants remained in this part of the Country near the seacoast; the place where a large garden and plantation of the Commander of this post stood is still pointed out.

I stopped here to day to dry my stock of blotting ["blotting?"] paper destined for the preservation of botanical specimens.

In a Country like this humid even in the midst of the tropical winter, journeying through the Jungles, the drying of plants without artificial heat is scarcely practicable. I found it the best plan to erect a frame work upon which the blotting ["blotting"] paper is placed dried and heated after which the plants are given ["?"] between the heated sheets and then pressed, this operation to be continued at least every third day, besides the paper being changed daily in the usual way. Thus specimens of the most difficult families, Bambacea Phyzophorea. . . . parasidual ["parasitic"] Orchideae and can be preserved._

17th December 1838

Proceeded at day break up the Lenny River.

This river has some peculiarities not to be met with in others on the

coast. These are the eddies pronounced to be dangerous at high water. They originate in some sharp turnings of the River, the narrowed bed being their [there] inclosed between two ridges of Mountains. As probably is ["in?"] the same parts cross ridges pass under the water, the stream is thrown into confusion and [on] occasions these contrary courses [cause] eddies and whirlpools. The danger has probably been exaggerated and apprehension can but be entertained for canoes and small boats and this only at the height of the Monsoon and at spring tides and the danger if there be any, could easily be avoided by waiting until slack water, When crafts at any time of the year can pass up and down. I dwell upon this object on account [page 85] of the navigation of that River being perhaps likely to become not unimportant at some future day.

The Banks on both sides past the rocky passage are covered with nepah palms (nipah fructicans) They occupy Chiefly the verge of the River, and root in the soft mud preferring such localities which are covered with water at half flood. It is not yet sufficiently ascertained whether the Nipah be indegenous in the Southern parts of Tenasserim or whether it may have been introduced from the Malay Countries. The first is more probable as this plant is found spread on rivers where scarcely ever man penetrated though a positive conclusion would be premature, we being so totally ignorant of the history of passed [past] centuries in these regions.

of the value of the Nipah in general I have spoken in my previous reports. Their leaves are exclusively used as thatch for all dwellings in the province. The groves of this palm on the Lennya are the general great furnishing place for the Province.

Since Moulmain has increased so rapidly their value has increased greatly, and a trade has opened between Moulmain and Mergui, Native crafts carrying the made Artaps or stitched leaves to Maulmain. Should the consumption continue in the same ratio as has been the case lately, there is some apprehension that the Nipah groves now spontaneously multiplying will be found insufficient.

In the neighborhood of Mergui plantations are beginning to be laid out in the Mangrove belts, and these great wastes can certainly be not better turned to advantage._

The lands of the Lennya River are also productive of considerable wood oil forests (. . . .) which are as yet untouched, and which are able to furnish an almost inexhaustible supply of that Article at the time when its value will be better understood.

We reached the Village of Lennya in the Evening. It is 32 miles distant from the embouchure [rivermouth], and the River runs in a North West Direction.

18th December 1838

Devoted the day to an examine [examination] of the neighborhood of the Village of Lennya.

The population consists entirely of Siamese fugitives who settled in the British territories. They are altogether poor, apparently very slovenly and inattentive to their own interest they cultivate the soil but in an imperfect manner; some of them are hunters, who range the Country, to shoot Elephants for the sake of ivory said [*page 86*] to be numerous in the neighborhood; the other Villagers occupy themselves during part of the year collecting and preparing rattans for the Market of Mergui where one thousand canes are obtained at present for one Rupee.

This occurrence of rattans has probably induced them to settle in this part of the Country for it is badly chosen for rice cultivation and as they have pretty nearly exhausted the rattan supply in the vicinity they intend to remove to some distance up the river.

Their crops were just about to be collected at that time. They are greatly exposed to the ravages of the wild hog swarming in the forests and a constant noise produced by the clatter of Bamboos with a shot or two at a time are employed to frighten away these animals as well as numerous birds particularly a small kind of Bullfinch which is very pernicious and alight upon the ripening paddy in flocks of thousands at a time; Monkeys and parrots contribute their share of depredation, and Elephants are however unknown to break into the fields. It may well be expected that the beasts of the forest congregate in this sequestered isolated patch of cultivation, all about being unappropriated wilderness without the trace of a human abode. The next isolated inhabited place Boukpeen is at least 20 Miles distant in a straight line

19th December 1838

The chief purpose of my having ascended the River was the report that some detached pieces of Coal had been found on a sandbank in the River, about 15 Miles up from the Village. As the locality discovered last year was found to offer difficulties on account of a protracted land

transport the ascertaining of the existence of another coal deposit, more accessible, was a point of importance.

I ascended the River from the Village in the Morning. The River above the Village narrowed considerably, and several ridges of Mountains running across its bed render it unavailable for large boats

The formations were indicative of the probability that this part of this River forms a segment of one of the Coal basins of which several still unknown will certainly be discovered in the Course of time.

The formations belong to the Epoque triasegue (Terrain pi né en) [triassic permian?] red sandstone group partially.

[page 87] To ascertain the nature of the whole Country about, with certainty is impossible the dense forests precluding any view, however limited of the surface; it seems however to be a plain with isolated hills of no great elevation besides which, two Concatenated ridges parallel to each other, intersect the Country from North to South but their crests also do not reach much above the high forests. Great part of the Country near the river is scarcely ten feet above high water mark and the alluvial ground seems to be of but comparatively recent origin.

The stately forests met with on the upper Country are wanting Deplerviarp [*Diplerviaria*] continue to elevate their Majestic tops above the rest of the vegetation. The rattan palms (Calame) [*Calamoideae*] thrive abundantly in this region; these however on the immediate banks of the River are nearly exhausted by continued cutting.

Twelve Miles about above the Village large trunks of trees laying in the River across obstruct navigation Sand banks accumulate round some, and in the Monsoon the torrents dig new courses.

About fifteen Miles up from the Village was the reported Coal place. The tides reach beyond it and the water rises there as yet about five feet the River dwindled down to an inconsiderable stream, full of sand banks sometimes not broader than fifteen yards._

Reached the place towards Evening.

20th December

The reported piece of Coal was found by a Siamese upon a small bank of shingle and debris of primitive rocks from where it came could not be ascertained. A section of a Hill washed out by a water at a place where the protruding part of a low hill formed an angle, permitted the examination of the rocks and convinced me of the existence of coal in this very locality

My conviction was based upon the following consideration._

- 1 The formations observed on the way up the River from Lennya were to be assigned to that series upon which coal formations generally rest.
- 2 The section open to investigation consisted of the regular slaty day ["clay?"] of the coal measures i.e. Indurated bitumen containing clay of slaty texture (thinly foliated) of greyish blackish or raddesh [reddish] colour red only on the upper most part N.B. Burnt in the Candlelight it emitted easily perceptible fumes.

[page 88]

- 3 It contained included masses of clayish pharosident ["?"] in other parts compact iron clay and pyrites in the layers.
- 4 The slaty clay alternated with a variety called by the German school Brandschiefer (Schiste inflamable French) consisting of thin plates of a slaty texture, pitch black brownish or reddish burning with blue color emitting sulphurous vapours.
- 5 Two oryctognostic [?] specimens were found in a slate belonging to the coal series apparently a Calamities and a Lepedodendron or lycopodites [?] pretty well distinguishable
- 6 Above the slaty clay rested red conglomerate in one part of the hill in other parts the hill was covered with loose debris clay and humus.

From 21st to 25th December 1838

Having accomplished the purposes for which I had visited this locality I returned to Lennya, from thence to the Mouth of the River and without stopping more on the road than was necessary to collect data for the construction of a geognostic Map of the Country. I returned by another passage through the inner Mangrove canals to Mergui for the purpose of replenishing the stock of provisions for the next voyage and arrived in Mergui town the 24th of December.

III VOYAGE.

The third excursion was undertaken with the view to examine part of the Islands to the South and West of Kings Island. The number of existing rocks & Islands of greater and lesser magnitude exceeded however the possibility of even touching at them much less to circumnavigate and examine them superficially. It was therefore necessary to select the most prominent or to leave it to Chance and to the winds where the surf permitted the landing or where some sheltered nook promised a safe anchorage for the night.

1st January 1839

Departed from Mergui with provisions for 25 men for a month (the boats could not hold more) on the first of the new year.

Directed our Course to the South West and landed at Kalaghium an Island divided by a channel of about one Mile breadth from the East side of Kings Island. It is one of the few Islands in the vicinity of the town [?] chosen by the Mergui people for their scanty cultivation several not inconsiderable plantations are situated there thriving well but [*page 89*] like all Burmese cultivation neglected to the greatest degree. Lichens *jungermanniae* parasitical *Orchidae*, *coleopal* [colossal?] *Nephenium* are permitted to ascend the areca plains [plants?] and to sap their Vitals. The tops of the Cocoanut trees are allowed to be devastated by the squirrels, roots to be dug at by rats and crabs the trunks to be perforated by *Calandra* and *Cerambyx* beetles. Scarcely are the most obnoxious weeds eradicated loosening the soil around is quite out of [the] question. Unless the Burmese are taught superior industry by more intelligent settlers, they will tenaciously persevere in their slovenliness

Kalaghium is famous for the best Mangosteen trees in Mergui province and almost the Northernmost boundary where that delicious fruit attains to perfection. To judge from the Trees I saw their introduction must be but of recent origin taking into consideration their very stout growth the eldest trees [“cannot?”] be older than 40 or 50 years.

They are said to have been introduced at first by the Burmese returning from the siege of Bangkok from Siam shortly after the conquest of those Countries. It is however more probable that Malays brought them from the Southern parts of the Peninsula in the first instance.

From Kalaghiun and Kings Island the Mangosteens it is said were introduced in Tenasserim town. Life [Like] Coffee Guavas and other seeds have been disseminated by birds and quadrupeds so also the luscious Mangosteen is avidly sought after by many of the minor mamalia chiefly Racoons squirrels Phyllostorne Peterope [?] and others of the order Volitantia [?].

In this day [way] probably, Mangosteens were disseminated in the forests of Tenasserim where they grow now spontaneously and form a kind of natural and invaluable misery ["nursery?"] for the gardens of the natives the Mangosteen Tree on account of the small compass of its roots can be transplanted at a greater age than is the case with most young trees in a tropical climates.

The spontaneously growing Mangosteen forests are nominally taken care of by the Government and people are allowed on application a certain number of Trees.

Examining the formations about Kalaghiun I discovered here near the sea shore the first vestiges of Copper in the provinces.

The appearance of a green substance which shewed itself to be carbonate of Copper or [page 90] Malachite found in a cleft on the sea shore found by accident made me attentive, and on further research I found a small vein running through gneiss and micacious shist in which iron and Copper pyrites combined were imbedded in a quarzous [?] matrice [matrix?].

The existence of this most precious metal forms an additional proof of the very valuable mineral riches in Tenasserim and though it is as yet uncertain whether the opening of a mine in this locality would be remunerating, yet its indication will probably lad [lead] to a minute research at some future period when the slumbering resources will be brought to light by European Industry._

2^d January

Before departing from Mergui a Burmese came to me reporting that there was at Kings Island Bay a peculiar mineral ore of which nobody knew what it was I engaged him to accompany me and to show the locality.

We entered Kings Island bay to day proceeding nearly to the bottom of it before we reached the reported locality. The mysterious mineral turned out to be graphite Color barnish [brownish?] black with indscent [iridescent?] Chiefly bluish shine mild to the touch in thin clusters of larmine [larinine?] like micaceous shist.

It runs in viens of an inch thickness on an average and seemed to be in considerable quantity. Blocks of sandstone through which its veins run lay detached on the sea shore and its glittering appearance and metallic lustre might well excite the attention of the ignorant natives, subjected afterwards to examination it was found exactly similar to the Kroon [?] graphit containing 90 per cent carbon and about 10 or 8 of iron Nitric acid dissolving the iron leaving as well as Aqua Regia the Carbon untouched.

I heard afterwards that this locality was long ago known to the Burmese that repeated attempts had been made to smelt it of course without success but it was considered by the Burmese Alchemists a valuable ingredient in gold making and that it is also applied as Medicine by the Burmese practitioners.

The discovery of this mineral will probably be no acquisition to the Provinces as it will scarcely were ["ever?"] compete with the vast and superior quantities annually exported from Ceylon. [page 91] Having seen this locality I left again Kings Island Bay after having taken in water at the French creek passed outside, and remained the night in a small sheltered Muddy Bay literally covered with shoals of small fish which were driven upon the mud pursued by a small shark squalus Canicula, where they fell the prey of sea gulls and of the wide spread Falco Pondicherianus._

3^d January.

Part of the day was lost, the second or Cook boat run upon a rock in the morning and got a leak; it was necessary to put [first?] run her in shallow water to wait the lowest ebb, and if possible to repair then the damage. The shock on the rock had fortunately no other consequence than to disjoint two planks united by cement, the boat being hauled rendered more watertight than before.

Continued our Course to the North West point of Kings Island, and passed over the Maingys Island (by the Burmese called Faro where we had scarcely arrived when a squall arose which was rather unusual at this season. The people were obliged to row part of the night to come to a safe anchorage

4th January

The Boat got a ground in one of the shallow Bays and remained sticking until lifted up by the rising tide.

This is one of the most common occurrences with the Mangrove territory that is within the first, second and sometimes third range of Islands, a space of about 15 miles breadth, which with few exceptions will be found impracticable for other conveyances but boats and smaller junks. The mud is soft, bluish grey or brown: people sink in it knee deep sometimes more, in some parts it is so tenacious that people can scarce wade through it. It is full of certain kinds of fish, crustaceous animals and Mollusca. With difficulty I was dragged sitting in a small canoe to be able to examine the formations on the sea shore.

The Maingy Island (it is I suppose divided in two by a narrow channel) seems no way interesting; it is comparatively more barren than others of the same magnitude, rocky, in most parts abruptly rising. It is resorted to by fishermen from Mergui to prepare Gnapee, this indispensable condiment to a Burmese in his cooking ingredients. I found a party of ten men lodged in a miserable shed on this Island occupied with the preparation of this substance, the stench was [page 92] dreadful to European olfactory nerves so that I hastened away from the pestilential atmosphere as quick as the tide permitted to extricate our boats out of the mud bank._

This Gnapee is prepared in the following way. A diminutive species of shrimp frequents in millions the above mentioned far extended mud banks. A closely woven net surrounded by a frame work is dragged over the mud, lifted the mud removed by washing in water, the small white shrimp remains behind. Many thousands are caught at once. It is said however to depend much on a state of the weather and other unknown circumstances whether the shrimp harvest be abundant, or whether it disappoint the expectations of the fisherman. And not only there is a difference in certain days. Some years also are very productive, and in some the shrimps seem to have entirely disappeared, and it is said that this depends greatly on the state of the atmosphere, the direction of the winds, the length of the Monsoon, and the Hurricanes in the open Bay of Bengal. Hence the very fluctuating price of this commodity which within a few months runs sometimes two hundred per cent._

The collected shrimps are brought into heap and then spread upon common Burmese mats exposed to the sun and left to dry (a secondary

operation is that some of the dried shrimps are pounder [pounded?] some not). After this the substance is buried in pots under ground left to ferment and to putrefy to a certain degree of (unknown to Europeans) precision.

I think it is then sold without undergoing any further operation. Mergui Province prepares a good quantity every year for exportation for which end it is packed in Jars or Bamboos. It is sent throughout Burmah and finds its way to the North of Ava, and even to Chinese Yunnan; it is employed by the natives to season with it their curries and rice. Some Europeans seem to be easily reconciled to the powerful flavor and in no way agreeable smell of this peculiar gourmandise.

Circumnavigated the Westernmost part of the Island. The shores are weather beaten – Mostly precipitous rocky and bold scarcely with a landing place. The formations throughout primitive or transition. The night surprised us on the West side of the Island. Numerous granite boulders scarcely permitted to walk on shore.

5th January._

Continued our Course from the Westernmost point of Maingys Island, in a South West direction early in the morning and touched at another Island distant about five Miles called Toban. It is about 3 Miles long but scarcely more than one Mile and a half broad. To the [page 93] East are several small Islands and rocks as far as the eye could reach, I counted 17 besides Maingys Island and the West side of Kings Island, which looked rather as a part of the Contingent [continent?].

The Southern Bay shut out from my view.

The Chief formation of this Island consisted of Prologyne [?] resting upon chloritous [?] micaceous shist The talc appeared in small silver white lamellae, the quartz and feldspath particles uniformly white. In other parts Granite took the place of prologyne particles of Horn blende sul ubing [substituting for?] mica. In other parts the granite was greatly decomposed and had an appearance

Blocks of feldspar in Christals were strewed about, so also Blocks of Quartz not far distant.

Above these the Keuper iron conglomerate formation as in most parts of the Island, occupied its place._

These different formations on such a small Island were altogether very interesting._

In the Botanical Department I was rewarded by a most beautiful
. approaching Gamtrus [*Ganiteus?*], a colossal forest tree covered with beautiful chaste white flowers whose petals were delicately fringed. From thence I crossed over to the great group of Doune Islands an accumulation of, as the Burmese say, 97 small Islands and rocks surrounding two large Islands which possess a most irregular form full of indentures and small bays confusedly huddled together separated by narrow channels sometimes scarcely 20, 30 yds. broad but generally deep. The formations on most of these Islands passed to day belong as far as I am able to judge, to the same series to that of Keuper and Grauwacke. Some violent convulsions of nature must have sent asunder these Islands which formed perhaps once one whole which sunk so that it left only the highest tops of its mountains above the surface. In general it may be remarked that the Archipelago of Mergui and the main bear much more the indicia of a [sub]merged terra firma than of a elevated land.

All these islands are throughout uninhabited and only occasionally visited by that peculiar race of fishermen, the Seelongs of whom I will have opportunity to speak afterwards.

Narrow passages lead into more spacious Bays resembling rather inland lakes.

We sailed through one such lake like an inclosed Bay in and came through a narrow passage into another basin about two Miles broad and shut in from all sides but the North side possessing an extensive sandy beach. [page 94] Herds of wild hog and Monkeys congregate on the sea beach to eat shell fish, made away at our unexpected and in these desolated parts certainly extraordinary arrival; The Bay was so shallow again that we remained upon the mud at the retreat of the waters. A tiger was seen to approach within twenty yards of our boats. A lighted torch was considered sufficient by the Natives to keep him at a distance.

6th January.

Passed the whole day through the Channel of Doun, now coming into lake like expanses of water, now into narrow passages opening after abrupt turning new unexpected scenery. It is scarcely necessary to observe that all islands and all rocks above high water mark without exception were covered with dense forests, the trees obtaining however not that unparalleled grandeur which is peculiar to them ["on the?"] Main. Tenasserim perhaps is the finest timber land in the World.

Proceeded to the South part of Doun where the second large Island called Njamain begins

It is divided by a Canal scarcely four Miles broad, yet the yesterday mentioned formations cease and give way to Parphyritic rocks. Occupied in making a collection of geognostic specimens I found that the rocks contain included Epidote [Essidote?] and strahstein [?] and an inferior variety of red granite. It would be perhaps worth while to examine the Chief rivulet of the Island to see if any precious stones are to be found there. I heard afterwards that in old times precious stones (what variety not told, people said rubies!!) were found in the Doun Archipelago it might have been Njamain or some other in the neighborhood to [“?”] the porphyretic formations now mentioned being not unpromising.

7th January.

Proceeded at the dawn of day with a favorable wind made about ten Miles to the South and remained for breakfast at an isolated Island called Wa Khiun. The appellation is vague and applied to at least ten Islands to my knowledge in the Archipelago; signifying entrance Island (embouchure) The Mouth of every river is called (Wa) The Island forms indeed the entrance to another group of Islands, which the Burmese call the Padeing group. The sea about is much deeper and the first zoophytes were seen at this Island.

These interesting animals live exclusively in blue water. As far as Mangroves and their concomitants mud and shallow water extend, they will be scarcely ever perceived. They covet a rocky bottom to attach them to it, and seek sheltered bays where they are seen though [page 95] the transparent sea in several fathoms depth incrustating the bottom. I collected a good number of Madreporae. Those rising the highest are the Meandrina chiefly Astereo and also Caryaplla [*Caryophillea?*], which want light to grow and to prosper Retapora rellulosa which is seldom found well preserved was here in great numbers so also Millepora very common. In violence . . . which appears as if covered with velvet.

I was however, unable to carry with me this time this collection, when taken out of the element the animals after death putrefied [putrefy] and cause an insufferable stench. The Burmese though their olfactory nerves are in other respects not at all delicate declared they could [“not?”] bear it, they would fall sick, after two days some of them indeed got malignant carbucles [carbuncles] on their legs and attributed it to the

effluvia of these decaying animals I was obliged though reluctantly to throw them again into the sea._

Continued our Course to the South. The breeze which sprang up in the morning gradually rose a strong North Wester which our open boats could not stand. In the course of an hour the sea was foaming and the boats shipped incessantly water four men were obliged to bail it out without remittance. Fortunately a group of Islands lay near for which we bore up & arrived in good time. Three Islands united to form a comparatively safe Bay in the middle where we anchored. The group is called Ralan on the Southern Island was a fine sandy beach overshadowed with beautiful trees of a species of broad leaved Syzirme [?] now in full blossom which justly may be termed the pride of the Islands. The wood is tough and light & could be used perhaps for shipbuilding purposes the largest Trees 3 ½ feet in diameter and a straight trunk of upwards of thirty feet.

In this place we found what justly may be termed the ruins of a Seelongs encampment, that is a number of sticks into the Ground serving as posts to build their temporary huts, not more elevated above the ground than necessary to be not carried away by the high floods during the Monsoon. My people scattered themselves fearlessly over the Island their tiger fear had left them for it is said, that wherever the defenceless poor Seelongs encamp there are none of these rapacious animals. The greater was the number of hogs which dig up the ground over a great space in the forests in search of roots of . . . and Deosceurea [?] their main food on the Islands.

8th January

The storm increased during the night & the sea was too high in the morning [page 96] to proceed I devoted the day to an excursion over the interior ascended the highest peak measured it and found it 650 feet high.

The Island is a mere rocky elevation with steep sides without intervening Valleys : some declivities which are in some parts where ["were?"] chasms or clefts through which the waters forced their way, and dug them out. One or several small rivulets are found on most Islands which are something more than prominent rocky peaks Water may also be procured by digging 1 or 2 feet deep._

The Burmese have some practical knowledge of geognosty and the

laws of hydraulics. In search after water they examine the position of the Strata (if the rocks be stratified) and where they see in a Valley two inclined stratifications meeting or approaching each other ["in?"] different directions they dig after water generally with success. The beautiful Collophyllum Indphye ["?"] lum Tin [*Calophyllum inophyllum* Linn] begins to make its appearance in number in this latitude, the farther proceeding South the more numerous it is to be found on the Sandy beach growing to an extended though not high tree.

The Guttiferae this interesting strictly tropical family has numerous representatives in Tenasserim of which many seem peculiar to the Country, they may be found also on the Siamese side of the Peninsula of the flora of which region we have however no Knowledge (. . . .) Cochin Chinese labours excepted This family finds a congenial climate in the low warm moist localities of the Tenasserim forests for which reason the coast of Coromandel and the West coast of Africa much more are almost destitute of representatives of this interesting order. The family is also interesting in a practical point of view._

The Gamboge of commerce comes exclusively from Siam Chiefly via Singapore, we are the neighbors of Siam and are yet ignorant to this hour [?] of the true plant from which it is produced. I devoted some attention to the Gamboge producing trees of Tenasserim and compared them with the descriptions of others about the subject Chiefly with the lately published valuable researches of Dr. Wight but found that our Gamboge tree is different from all and is certainly not the true Siamese gamboge for it is inferior even to the Ceylonese. Hebradendron Gambogiendes being less valuable ["soluble?"] in water greater proportion of Volatile oil ["oil?"] and 3 per cent more of Legum. ["lignin?"]._

[page 97] Of this family I have found hither to in Tenasserim

four Species of Garuma

one " " Gynotreitis

two " " Mesna

four " " Collophyllum

The Burmese are acquainted with the Medical properties of the Tenasserim gamboge which possesses the drastic virtues of the Siamese species, the Mystery of Morrisons's Pills seems to be long time known in Tenasserim

9th January

The storm lasted till midnight, then abating, the sea calmed with that rapidity which is not known in extratropical climes so that I could venture to leave the port of Na lan at 10 o'Clock in the morning after having visited the outside of the Island to examine its formations._

The Njamain group show nothing but granite on Na lan there was not a vestige of it but sandstones occupied the surface as well as secondary clay states [slate?] on the tops and Ochrous iron conglomerates on the sea beach._

My opinion that the Islands were ["rent!"] a sunder not by the influence of currents the effects of ebb and flood, at ["?"] but sunk in consequence of a convulsion of nature is more and more corroborated. In the afternoon the weather calming, it permitted me to visit several isolated rocks running like sentinels ["?"] [sentinels] in one and the same direction and I could not otherwise than consider them the remaining peak of a ridge of Mountains now buried by the ocean this was the more visible at low water where the transparency of the sea permitted to observe the concatenation of these peaks.

These rocks and small Islands continually exposed to the influence of the storms and waves must decrease rapidly if they be not composed of sandstones and wack as those observed today.

We arrived the Evening in a Bay on the East side of what probably is a part of the great Lord William Bentines [Bentinck's] Island

10th January

The people did not consider themselves safe in the Bay we arrived in [page 98] yesterday, the weather continued to be rough, they advised me to employ some less boisterous moments to cross over to Domel Island, where they expected security in a small Bay. Having no fixed place and the whole of the Islands indiscriminately open to investigation I consented and in about two hours we crossed over to a Bay on the Western part of Domel about the Middle of the Island

By accident I discovered this Tin, the first locality where I found this metal on the Islands. A small rivulet fell into the sea at the place where I encamped. Its borders appeared to be black and on minute [?] inspection it was found that this black sand consists of minute particles of tin stone carried down from some unknown locality by the waters. It was not in great quantity yet sufficient to into hopes of discovering tin, massive

or disseminated in the granite I therefore decide instantly to remain at this place to examine the neighborhood more minutely. To penetrate into the interior to follow the rivulet and if possible to examine the formations was my Chief intention. The forest was however so thickly over grown with Jungle and Chiefly with Rattan palms that the whole day was lost being occupied to cut a road of buthoo ["?"] [but two?] Miles distance up the Rivulet which was found to come out of a ravine.

11th January.

Continued to penetrate into the interior examining every protruding stone granite blocks in abundance, but without indicia of tin Stone; the tin sand though still found in the cleft and under the stones of the rivulet yet becoming scarcer the more we advanced Penetrated in the course of the day about 6 Miles to the interior without success the tin sand as well as the rivulet itself disappeared. We were obliged to return, the people almost all wounded by the Rattans. The Rattan palms as already indicated form the greatest obstacle in penetrating. The forest their species are numerous I have hitherto collected eleven. Having however not had opportunity to observe them at all season of the year I cannot take it upon me to indicate by name some of the most useful of the genus[es] which together with Bamboos enters so largely into the domestic economy of the Natives

[page 99] 12th January

Continued my researches in a contrary direction examining the granite rocks on the seashore and was more successful than in the interior at least I found in two places isolated crystals protending out of the granite the largest about 1/3 part of an inch broad semitransparent raddish brown. This was the first time that tin was found in its native place in Tenasserim, all other tin are ["ore?"] hitherto seen having been stream tin all endeavors to find more however were in vain.

13th January

My last examined place was near the South West extremity of Domel. There a portion of land about 2 miles is united by a narrow Isthmus of about ½ of a Mile with Domel near its South West extremity I circumnavigated it, and came in a Bay about 3 Miles along at the bottom of which I landed. This Isthmus consisted of a low land formed in

apparently later times by deposit white mar [marl?] appeared above culens [calous?] iron on both sides of the Bay were primitive rocks. The most remarkable was that the sand on the beach was tinged black and on nearer inspection it was found to consist of Metallic particles I ordered to collect a quantity of it and to wash it out, in the course of the day. My people collected of it more than two hundred weight analyzing it afterwards during the Monsoon, it was found to be nothing but black iron sand attracted readily by the Magnet.

Myself went in search of more tin in its native state crossed for that purpose the dividing Isthmus scarcely elevated above the Mangrove region and followed the sea shore to the north. Immediately on the sandy beach descended huge granite rocks. I was rather lucky in finding Minerals to day, but none of importance I found some veins of Hepatic [?] iron pyrites in granite, the yellow color of which made the Burmese think it was gold.

14th January

Continued to examine Domel towards the East circumnavigated in a small boat the Southernmost part opposite to which lays a small Island more to the East [page 100] To the next promontory is a valley or no rocks visible on the sea shore a regular geognostic explanation of the Island as long as every inch of ground is covered with dense forests and minor [?] vegetation will lead to no results or only to such which are elicited by accident.

The object of my research a tin vein was not attained.

Domel itself is one of the most considerable Islands of the Mergui Archipelago. Its name is of portuguese origin. Though Captain Foster generally is quoted as the discoverer of the Mergui Archipelago, certain it is that Domel was known to the Portuguese merchants to Malacca. It was celebrated and derived its name from honey (Mel) though were [“we are?”] not made acquainted with any proof that it occurs there more frequently than on other Islands.

Its greatest length is 22 Miles, its breadth in no part exceeding seven, the course of its mountains ran from N.W. E. to S.W.W. It is mountains throughout unlike the main land where uniformly looking ridges extend many miles unbroken. Domel possesses several conical mountains of which four attain about 2,000 feet. It seems always to have been uninhabited no vestiges of human labour are to be found there.

Cultivation could be carried on very well it possesses several fertile valleys and a plain of some miles extent is on the East side of the Southern extremity. The exploration of the Island would require considerable time and leisure the progress could be but slow the above mentioned tatami [?] are the main impediment as well as the innumerable variety of scandent plants. My attempt above mentioned to penetrate into the interior may serve to prove the impediments. The parts nearest the sea coast are like on all Islands the most difficult to enter higher up the impediments are not so great as might be imagined. Numerous Rivulets of smaller note descend on both sides from the Mountain; the West side has deeper water than the East side which sea shore is thickly studded with Rhizophora forests. It possesses numerous game Rhinoceros in abundance, still more Tigers which are very much feared though they are every where on the Eastern side of the Bay, not to be compared in ferocity with the Bengal and Malabar tigers.

The spontaneous productions of the Island are totally unused even the second Tribe of the Seelongs seldom touches there. Biche de mer for which they search in preference is more abundant to the South._
[page 4] "Reports alluded to in the foregoing."

January 15th.

Left Domel to-day, in my canoe to the South, To the South of Domel passed several small rocky islets all having the form of great white-ant hills. The waters rush with violence at Spring tides, at the rate of eight knots, thro' the Canal between Domel and Sir Frederick Malcolm's Island we could not stem [stand] the current in the morning and were obliged to seek shelter behind a small Island to the South of Bushby's Island. The storms at the time of the monsoon must be exceedingly violent here, the vegetation bears marks that the waves rise above the usual mark, though every fissure gives Nourishment to vegetable life, yet all trees are stunted, dwarfish. In some points they seem as if worked into artificial shapes, in the style of Versailles, at the time of Louis quatorze. They assume some times the shape of Buxus cropped at the Top, at other points they look as if a mighty wave had descended and depressed them laterally. The peculiar Elephant rocks on the side of Domel (of which latter ascend Majestic pyramids like out of the water._

We landed on the Small Island, and found a solitary cocoanut tree, the only one upon the thousands of Isds [islands]; which if planted alone

[along?] with cocoanuts on the borders of the Sea, would yield a considerable revenue to Govt. Everywhere the vestiges, that the Seelongs had been there, wherever these people had been, there are two things in abundance, common flies, filling the Boats immediately, most annoying, and the shells of a peculiar unrivalled beautiful and great Mollusk, which forms apparently an important part of their food, an *Onchidiura*[?]. It [page 5] is an important article to them, not only as food, but as an Article of exchange like beche-de mer, exported to China to satisfy the most Singular appetites of that highly gastronomic people. This species (specimens of the largest size about five inches high, and as much broad on at their vases [bases]) is to be found in great numbers on the seashore amongst the rocks. At low water it does not retire to the sea but remains between the Clefts, boat loads of it can be obtained in a Short time in good localities. I tasted it boiled, but could not well digest it.

To fit it for exportation the Seelongs cut off the head part (the foot muscle) which like the *Holothuria*, they smoke above fire and dry in the Sun._

At Slack water we continued our course, passed round the western and Southern parts of Sir Frederic Malcolm's Island, which is nothing but a large granite block with but few places to land, passed between it and Sir Edward Owen's Island and remained for the night in a fine bay on the east side of the latter._

January 16._

The Bay on Sir Edward Owen's Island is said to be one of the best in the Mergui Archipelago for collecting Beche de Mar or sea slugs. I saw Many hundreds this Morning in the shallow water, together with *Echinus*, *Asterias*, *Enerinus*, *Euryall* &ca. They move but slowly, do not care about the presence of Man, if touched contract violently, even so that the viscera protrude on both sides, They are [page 6] are repulsive animals, to touch them creates a chilly sensation, they stick to the finger, and if thrown away a viscid filamentous Matter not unlike birdlime remains behind, some kinds are detached even with difficulty, possessing invisible horny recurrante [?] spines which penetrate through the Skin. People say that the degree of viscosity, assists in determining the good quality They distinguish more than thirty varieties. I could not discern more than three, the great whitish, highest in price, Another grey with red specks, and a third black the least esteemed. There are besides two other

Holothuria of great size, which are not collected because unsaleable in China. Millions of these animals must be in the Shallow rocky bays of the outer Islands of the Mergui Archipelago (amongst the inner ones, not one is to be found) and they propagate probably rapidly, because the most voracious sea animals scorn such a food. Only the perverted taste of an over-refined people made them subservient to their inordinate desires (whether the aphrodisiac virtues attributed to them by the Burmese as well as by all the eastern nations be real or imaginary, is not yet sufficiently determined, the scanty population of the Seelongs collect only as much as is necessary to exchange with this produce the few commodities they are in want of, liquor from the Chinese who follow them in their boats, and buy daily the quantity collected, until they have filled their little crafts, after which they return to Mergui when having got together a ship load they carry it [page 7] it to Penang, from whence it is shipped for Singapore, the great modern emporium of this (for the Chinese market), very important article. The only preparation it requires is, to be smoked and then dried in the Sun.

Passing the south point of Sir Edward Owen's Island, there is an unusual interruption in the Mergui Archipelago, between it and the considerable island of Lampee intervenes not one of the elsewhere numerous rocky islets visible the latter Island belongs to another range of mountains as the quiet ["quite?"] different formations prove.

An Island to the East; nearly parallel to the north point of Lampee, with [which is] properly called high islands, is a conspicuous landmark for many miles round Lampee is, in a direct line 12 miles to the south of Sir Ed. Owen's All arrived there late in the evening._

Jany: 17th

Lampee Sullivan's Island in its geognostic formation is different from all other islands I had hitherto visited all rocks are satisfied ["stratified?"], and all appear to me to belong to the transition Clay Slay ["slate?"] group. They are characterized by their variableness, their tendency to change their composition by frequent (generally rapid) passage to ampilite ["?"] silicious [?] shist and green stone. I am not however certain whether all the rocks belong to transition or whether some some do not appertain to primitive Clay Stare ["slate?"]; the occurrence of greenstone slate ([dishase schistiade [diabase ?]) is visible in several parts, however granite and true syenite are to be seen._

[page 8] The beds follow rapidly upon each other, and the great number of beds appears to form by their frequent repetition alternating rocks._

Every where the Shirts ["schists?"] are intersected by veins of white quarz which utmost ["contrast?"] with the black aspect of the main formation. These veins of quarz attain the slickness ["thickness!"] from 1 in. to 2 ft.

It was in these quarz veins that I found Copper pyrites the second locality in Tenasserim where that important numeral ["mineral?"] was discovered which merits to be further followed up._

This Island appeared to me to be so interesting that I determined upon circumnavigating it, for which reason we started this morning, the more as we could find water no where in that part of the island where we landed, that is on the Northernmost point.

The island has a very Irregular form, and may be said to consist of three different united islands, the first part extending in a direction from North East to South West, nine miles long, the Second running from North West, South East, 8 miles long; the third united with the Second by an Isthmus, of but half a Mile broader, running directly from North South, ten Miles long the broadest part not exceeding 5 Miles. It is full of bays and indentures, chiefly the South West faces which are Shallow, and the resort of innumerable fish as well as Sea slugs for which reason it is the main Station of the middle tribe of the Seelings. For agricultural purposes, it is by far less adopted than Domel or King's Island. To determine however a priority [*a priori*?] whether one or the other Island be promising or not, is too hazardous—we have no experience whatever about the growth of the most common of tropical articles, probably never a Single fruit Tree, not even a Cocanut or Plantain Tree had been planted on this large Island, I remained in a Small Bay for the night on the North West Side, saw at the bottom of the bay a canoe and Men the first since I had left Mergui, my Burmese followers were alarmed at the possibility of falling into the hands of Malay pirates, went armed with [page 9] a party to meet, and to question these people, and found that they were Malays in the service of Dalter Inan, the Malay Chief who settled in the Province since their occupation by the British. He has farmed the edible birds nest caves from the Government, and these men were employed to watch them._

January 18.

Employed in slowly circumnavigating the Island, passed to the Westernmost extremity and then through the narrow Channel formed by the adjoining Blunts Islands. The North West Shore is weather beaten, the South East shore protected, sandy beaches extended along the less elevated shore decorated with Casuarina Trees. We halted at a place in a deep bay where a rivulet issues from the broadest part of the island. The Shallowness of the Water, and an uninterrupted pile of the rocks will forever prevent the approach of larger Vessels. Near the middle of the Island to the West is a small group of one larger, and 6 lesser Islands, where I intended to remain for the night Late in the Evening discovered some smoke ascending in one of the small bays; my people concluded of that Seelongs were encamped there, and desirous of coming in contact with that extraordinary wandering tribe, I gave instantly Orders to cross over, where I arrived after an hours full._

January 19.

I spent the day among the Seelongs at my first arrival in the night, a general terror spread over the defenceless community, they not knowing whether friend or foe was approaching, suspecting an incursion of Malays from the South, the women and Children had fled into the interior, and their best property Sea Slugs and rice had been buried in all hurry in Jungle.__

Find that white man was come amongst them (if ["it?"] was on their parts for the first time) their apprehension changed into joy and the whole community came in the morning where I had landed to welcome me. There are about 70 Men, Women & Children altogether. They had encamped on the Sandy Sea Beach; each family had erected a little raised shed covered with Palm leaves where all the Members [page 10] meddle together in the night. There they sat, a dirty miserable looking congregation, the Women occupied in making matts of a peculiar description from the Sea Weed (which are sold in Mergin and Moulmein and much sought after) the Children screaming apparently out of fear at the strange opposition ["apparition?"]; dogs, cats and Cocks, all joining to make their full chorus. Everything had the appearance of confusion, and even the animals seemed to be aware that my arrival amongst them was an extraordinary event._

Some of these sheds appeared like butcher's stall, large pieces of

turtle cut in pieces, and rendering the atmosphere pestilential were every where drying in the Sun (it is their main food) shell fish were seen to be extracted from the Shells, and wild roots of a species of *Dioscorea* as well as the fetid shoots of *Cycus circeales* [?] were prepared for cooking._

On the beach lay about 20 or 30 boats, well built and light like nut shells swimming on the surface, the bottoms built of a solid trunk, the sides constructed of the slender trunks and palms, strongly united and caulked with palm hemp._

These Boats not longer than 30 feet are the true houses of the Seelong to it he entrusts his life, and little property in it, he wanders his life time from island to island, a true *Ichthossay* [*Jothnopay*?] for whom the Earth has no charm whom he neglects so much, that he does not even entrust to her care a single grain of rice. But even as fishermen, these people are to be considered yet in the infancy, they have even no nets, the trident is their only weapon, with which they spear Sharks and other Fish, as well as turtles. All the rest they want, is done with the dale [dah], or with the hands, they know no other instrument._

In their exterior, they are well built, apparently healthy, darker than the Burmese, part of them approach the Malay type, part of them the Etheopian, the curly hair of some of them especially speaks in favor of a Negro origin. Should they have had formerly no communication [page 11] with the Andamanese so closely.

I spent the whole day in conversation with them, thro' the medium of their headman who, understood Burmese. Besides him and two others, the rest were unacquainted with it, some spoke [*Siamese*? nothing?] besides their own idiom, some Malay._

They behaved with remarkable civility, and decorum. They related that their Children are exposed to Sickness and death from 2 to 6 years, who Survives that period is considered safe. I think they die to judge from the description, in consequence of dysentery, not unprobably caused by the indigestible nature of their food at that liuderage ["tender age?"].

They know no Medicine whatever, a strange exception uncultivated nations being generally in the possession of the greatest number of simples, besides the host of charms and other indifferent substances to which great virtues are attributed. To get physic and charms from the Chinese, they sell their most Valuable produce pearls Ambers [*ambergris*], *Lignum*, *Aloes*, &ca. The greatest present I could make them, besides some ardent spirits, was Medicine. When they saw me drink

Coffee, and heard that I drank the black substance every day, they concluded this to be the great Medicine of the White man, and were not satisfied until I gave them a good portion of it.

They are addicted to liquors in a frightful degree, intoxication is the greatest enjoyment they know. By all who have to do with them (Chinese and Malays) they are provided with toddy in the first instance and during the subsequent state of Stupor, robbed of every valuable they possess. They gain however so easily what they want, so that they do not seem to mind much the loss when they come again to their Senses. They are indolent; only young men work, that is collect what falls under their hands. Surrounded with Valuable riches of nature, they remain miserably poor. The regeneration of this race will probably never be effected, but the Seelongs open a fine field to a truly philanthropic Missionary. If they remain much [page 12] longer in this state, their name will soon be erased from the list of nations. Their ideas of the Diet are very imperfect, they believe in superior agencies without any distinct idea. The immortality of the Soul is an idea too high for their comprehension questioning [“?”]. When asked, what they thought would become of them after death, they answered, they never thought about it, and added by way of excuse, “we are poor people who know nothing.”

They are full of Superstition and fear, when a person dies the body is exposed in the Jungles, the whole congregation leave instantly, and do not return till after years, when the bleached bones are collected and buried._

I accompanied a party of young men on a fishing excursion they were very dextrous in managing the Spear, which was attached to a 20 feet long bamboo. They caught in an hour 3 large turtles, two Sharks and other small fish. They went then to collect the ouchydium [*Orchidia?*], between rocks, of which upon this island the greatest number is found._

January 20.

My Stock of provisions was now nearly exhausted, and I was obliged to return towards Mergui. My hopes of getting provisions for my people amongst the Seelongs were frustrated. They had nothing, not even rice or dried fish; they subsisted entirely upon the produce of the day._

Passed along the Coast of the Island to its Southern most point through the Canal which divided it from observation Island, and then upon the other side again to the North. The formation throughout were of the same nature, as also the Vegetation, the Water Shallow, the ground for

cultivation little available except for Cocoanuts; on the Sea Shore many millions of this most useful palm, would find a congenial soil on the islands of the Mergui Archipelago. Remained for the night on the Coast side._

January 21.

The distance from the upper part of Sullivan's Island to the opposite main is 10 Miles. Unlike other Islands it is not surrounded by minor islets, or rocks, but the intervening space of 10 Miles in every direction towards [page 13] towards the main is open, only the Gregories in latitude $10^{\circ} 40'$ between the Southern parts and the main are an exception. These Gregories are five small Islands surrounded by reefs with extended sandy beach. I passed them without having had opportunity to land. They passed [possessed?] no water, and my people were in great want to it. We went on therefore the whole day in a North Westerly direction, until we arrived at dusk before a great island, which the Burmese called Coyeeghee-oo, where we found water to the great delight of my people who had been obliged to fast that day, being unable to cook their victuals._

January 22.

Continued to go towards the North for the purpose of entering Boukpeen, a Siamese Village in the main, where I hoped to get some provisions, I find the Burmese call Coye [Koyay? See entry for 25 March], the whole group of Islands hereabouts, their numbers must again be great I could say about fifty. The main lands recedes in this part towards the East, and a spacious Bay opens. The Shores of the main land are overgrown with Mangroves, and showed broad and numerous openings. It is possible that several Rivers fell here into the Seas._

In latitude $10^{\circ} 45'$ there is to be seen on the main land a high Stock of mountains separated from other ridges, which at least attain an height of 3,000 feet. It appears to be about 15 Miles inland. This part of the Country seems never to have been trodden by man, except perhaps by some Siamese hunters in pursuit of the Elephant._ We landed at a Small rocky island for breakfast, where I had opportunity to make a good collection of Shells._

The inner islands in general are not favorably situated for collections of this kind; the expectations of a conchologist who has seen the splendid

Specimens brought from India in European Cabinets, would be greatly frustrated in the Mergui Archipelago. The finest species are to be found on isolated islands in the Sea, the absence of divers and drag nets, precludes the possibility of becoming acquainted with these treasures of Natural History. [page 14] The most common genera frequenting the inner shores are the following Bivalves of in the rocks the known genera Mytilus, Pinna, Ostrea / of in the Sand and mud Aspergillum, Mya, solen Mactra / of such found on the ground at low water Chama, Glossus, Cardita, Arca, &ca. Hunivalves [?] ouchidium Sephonaria, Pasella, Fissurella, Haliotis, Nerita, Natica, &ca. &ca. most of these not firmly attached are seen to observe strictly the rise and fall of Water, they migrate up the rocks with the flood, and as the water recedes; they wander again back with it. Only few species remain on the rocks, they cannot bear the searching [scorching?] influence of the Sun, dying up in a short time, the rocks many seek shelter in the Clefts, others are involuntarily caught in Small pools in the rocks._

The number of species living in the mud must be considerable, those buried in the Sand, are not so numerous as might be expected. The Burmese eat at a great variety of them, the Malays and Siamese less so, the Seelongs confine themselves to a few Species, which to their taste are the most delicate; but these few Species, constituted a chief part of their Subsistence. Arrived in the evening, at the entrance of the Boukpeen River.

January 23.

The entrance of the Boukpeen River is filled with Sand banks : at low ebb above Water, larger Crafts it appears could not cross the bar. The river itself is very inconsiderable, the appearance of the Country is highly investing at a distance. The Boukpeen Mountain or rather a separately elevated Stock of Mountains, is to be seen to the South East of entrance; the Mountain is about 3,000 feet high, and has never as yet been ascended. To judge from the description and Samples seen, its formation is granitic in the formation of which large plates of talc take the place of the common Niva [Mica?].

At the entrance of the Boukpeen river is a fisher hut, and small fishing stakes are erected on the Sandy bar before its entrance. The quantity of fish caught, is very great; the people sometimes do not know what to do with it, and throw a part of it again away. The fishing Stakes [page 15] are also diligently visited by different animals, which seem to

know that they can get an easy report [“repast?”] there. These are the Alligator, the Sutra [Lutra], or fishe eater, the herons, the falcons, besides hundreds of Sea Gulls which are seen to sit in rows on the Stakes, and whose visible white shining plumage is a good land mark at a great distance from the Shore._

Sharkins [“fins?”] are in preference collected for the Chinese Market; some fish is cured by treading, and drying almost without Salt; all the blubber is thrown away as useless. We went up the river in the course of the day. The Village of Boukpeen is not situated at the main River, whose source as yet remains unknown, but on a Secondary Areum [arm?]. The greatest part of the way is through Mangroves gradually ascending towards the interior, I have mentioned already before, that all species of Mangroves have strictly defined localities in which they grow, some being found, but in Salt Water, others in brackish, and others again in cold, Sweet Water. The L Heritira is that species, which grows the most in land, and is found on the verge of the Mangrove belt. Places where this Tree grows are considered already adapted for rice cultivation. The soil near Boukpeen is said to be the very best which can be chosen for low land rice plantations, the rice in that place the finest of all in the Southern Provinces. Examining the Soil, I found, that almost all ground Selected was cleared L. Heritiera forest.

At the Village the rivulet narrowed so much, that the boat could scarcely turn, and when the tide Subsided it was found to have scarcely one foot water._

The Settlement is but of recent date and consists entirely of Siamese, who have thrown themselves under British protection. They have judiciously selected their new abode, for not only the Soil is very productive, the Country is also very rich in tin. There are about 40 families, who have cleared a space of circa [“?”] an English [*page 16*] square Mile for cultivation. The population seems to prosper, and the appearance of the men was much more prepossessing than that of the Lenny [Lenya] a people with whom they hold but little communication and declare them to be a people of an inferior race. The Boukpeen men, namely come from the Peninsula, and are a mixture of Malays and Siamese their progeny have acquired that self estimation and pride which characterises the Malays in such an eminent degree._

The Crops were just gathered, and the people had a most abundant harvest._

January 24.

I went to day to examine the tin Country in the neighbourhood of this place. The last mentioned rivulet which leads to the Village of Boukpeen, comes from a high range of mountains, a days distance from this place. It is above the influence of the tide, and but 10 or 12 yards broad : the quantity of water depends upon the season. In the Monsoon it is a Violent torrent, in the month of March it is nearly dry. In its upper part it carries tin along, partly transported from higher parts but found also as stream tin in the adjoining deluvial formation. The place where the Siamese get the tin is but an hours distance above the Village. Their process is very simple exactly the same as is employed by Burmese and Siamese thro' the Peninsula; they wash it out in wooden Moulds, (as described in my previous report.) Notwithstanding this imperfect method, they themselves confess that a person diligently employed can earn in a day from 12 Annas to Rupees 1, 4 As. worth, it seems however, that these people have so little stimulus to work, that these riches remain unused before their own doors. The little which is brought to light is washed out by Women, and sold to Chinese traders, who wander along the whole West Coast of the Malay Peninsula with their small Junks entering every part—Cape Romania to Tavoy and barter their commodities for gold dust, pearls, tin, and Sea Slugs. These Men greatly resemble the pedlars of Europe. I went over the [page 17] Country, and found that the tin is widely spread, and that washing it out in a large scale, would be highly profitable. It cannot be said to contain on an average [“less than!”] 6 per cent of ore in the debris. The grains (rather crystals) in which it occurs are large than those I had hitherto seen, the Tavoy tin being but in the forms of minute black sand. The Boukpeen tin is also said to be more productive than the first[;] Tavoy tin gives on an average 55 per cent Metal Boukpeen tin from 60 to 68._ Of both it can be affirmed that more careful and Scientific, something [“smelting!”] process would bring out 8 to 10 per Cent more. The Country is level, with few hills between which the Stream tin is deposited. How it came there, or by what action the primitive mountain in which it was originally disseminated were ground to atoms, must remain a difficult problem to solve. almost the whole of the tin which has, its evident sphere of diffusion, known on the globe here, from the 14 degree of latitude till beyond the time [“line?”] [the equator?] is collected from ores which must have been transported from their original locality by awful convulsions of nature.

The Southern part of Tenasserim is the proper home of the Valuable timber tree *Lagerstromia regia*. It is found, its is true also in India in Calcutta, however it is more shrub like and visibly a stranger; in Amherst province it grows already as a tree, but its trunk does not attain more than the height of 8-10 feet, before it divides into branches; it is there on the banks of the Attaran, the guin, the Salween, and in the months of March and April, one of the finest ornaments when opening its large branches of lilac flowers, yet it does not attain that perfection in which it is found to the South, where its trunk grows to the height of 20-25 feet before dividing into branches and is 3,,5 feet in circumference.

It occupies in latitude 10° and 11° the plains 5,,7 feet above the L. Heritera which during the height of the Monsoon, must be overflowed there it is the most common tree.

The general use of this tree is known, and it is one of the best [page 18] timbers for Ship building; chiefly its extended curved branches are used by the natives and Chinese in preference for crooks._

January 25.

Left today the Village to continue my course to the North was obliged to wait until the tide suited, for at one place the boats stuck fast until relieved by the rising Waters._

The Siamese population seems to be much disposed in favor of the British Government and the Villagers expressed their ardent wish that their relations might once be allowed to throw themselves under the East India Company's protection, several families arrive every year but their number is limited for too [two] reasons, 1st, the same system prevailing as in Burmah and China. No female being permitted to leave the Country. 2^d: The love of Country, having so great attractions that the greatest tyranny is requisite to force a man to expatriation, in Asia with Bhuddistic Nations this is not so much the case as with Mussulmans with whom veneration and preservation of their Ancestors grave, forms one of the first duties of the descendants, but here with Burmese as well as Siamese, the doubt of British stability, the ignorance of the Anglo Indian power is the great check, which impedes emigration._

We passed down the river and went part of the day along the Coast of the main towards the North.

January 26.

Went along the Coast passed Sedeing, a Malay Settlement, established by Mr. Maingy, without there ["?"] of which to speak, I will have later opportunities, made little progress on account of blowing hard from the North, and was obliged to land at a small Island, a little above Sedeing called Wet Khurn or the Pigs Island, Sedeing forms a promontory around which a great flat extends, so that Vessels cannot approach it, and it is therefore in this respect badly chosen. About 10 Miles to the North opens a bay to the East, the bottom of which is thickly covered with Mangroves, and several openings ["render?"] it doubtful whether it be part of the Main or projecting islands.

[page 19] **January 27.**

The same strong Wind continued which obliged us to keep close to shore and to follow the irregular form of the Coast. Here are three Promontories, before arriving at the inner Lennya Bay. At the receding of the tide, numerous bogs ["hogs?"] were seen on the bays to congregate on the Sea Shore for the purpose of devouring Shell Fish. Of all the wild animals so numerous in this Country, none are more frequently seen the hogs—it is the animal spread the most over all Chinese [?] over the Widest space of the Old Continents in its wild state adapting itself (being truly omnivorous) to all kinds of subsistence. In Tenasserim, it is found as well on the highest Mountains, as well on the Sea Shore, for ["far?"] in land, as well as on the Smallest Islands where nothing quadrupeds is to be seen devouring the fruits of the forest the bark of trees, the Bulbous Plants, the Wild Honey, White Ants, Turtle Eggs, Shell Fish and Crabs. Its nature changes however, it is no more that impetuous ferocious animal of Northern Europe, it seems much less dangerous than the Indian boar. Here it is seen generally in herds of 10 to 15.

January 28th.

We arrived at Oakphoo Island yesterday, in the night, and continued our course to the North, made but little progress, the Burmese being tired and Several Sick, I myself had an adventure which made me sick for two days amongst the numerous kinds of Ants (Formicae) the knowledge of which interesting peculiarities would require several years observation. There is one red kind of the size of 4 to 5 lines which builds its nest upon trees; large broad caves [leaves] are selected and united with a Spider like

web, 10 and more such nests are seen upon one tree, not unlike the nests of certain kinds of Caterpillars (Geometrae) These Ants in preference, live near the Sea Shore and descend to the Verge of the Salt Water, though they are also seen far in the interior upon Mountains. The Mangrove territory is the most frequented by them. They are bold pugnacious animals, which heedless of danger attack every thing which opposes itself to them, and wherever they have attached themselves with their [page 20] powerful Maxillae to me [“any?”] object, and may it be iron they do not leave it even when the head has been detached from the rest of the body. A traveller along the Sea Shore will scarcely be able to avoid coming in contact with them, they bite very severely, but the pain generally lasts but a few minutes, and he will soon be indifferent to this Sort of annoyance. To-day penetrating a Mangrove forest. I found myself at once in the Middle of a Colony of these Animals, perhaps several hundred of their nests being in all directions from the trees. Instead of retiring the way I came, I went a few paces a head, but found, that on every tree and bush their nests augmented my intrusion had already caused a general alarm, the whole ground swarmed with Ants, and their approaching columns made an audible noise upon the dry leaves; all branches were alive with thousands, and other thousands came forth from their nests, and not only that I was attacked by Masses which mounted my legs, they were also falling upon me from the trees. I retreated as rapidly as possible, but it was too late. I was literally concerned [“covered?”] with Ants, and a thousand bites were inflicted upon me simultaneously. I do not recollect to have felt ever such an acute pain as in those moments. I ran to the Sea Shore and threw myself into the water but in Vain, those which had bitten did not let loose even in Salt Water—My Clothes were finally torn from me by my people, and each ants head separately extracted._

The consequence was a fever, and even a transient delirium, my people rubbed me over with Cocoanut Oil, and after a few hours I recovered.

January 29.

My people did not proceed since my accident yesterday, but waited till I was better, as Violent as the pain was in the first instance, as transient it was, were it that these Ants would bite or sting, with that Violence as some species do in this Country, when one single sting produces a considerable tumor, the number which had attacked me

yesterday must have Killed me. But so, I felt myself to-day already tolerably better, only when writing, I felt my hand to tremble, as well as a general nervousness pervade my [*page 21*] body, perspired copiously and a powerful Sour Smell (undoubtedly formacid ["formic acid!"]) filled the atmosphere round me. We continued our course to Mergui through the Mangrove Channels. I had already once passed coming from Lenny, and arrived the 12th [1st or 2nd?] of February at Mergui.

IV VOYAGE.

February 7.

Since my first arrival at Mergin when it was known amongst the Natives that I came into the Country to look at all kinds of Stones, Plants and Animals, I had at different times Visits from Malays, Shans and Burmese, all of whom spoke of an Island in the Archipelago, which contains gold in great abundance. Marvellous stories were added to it, of Nuts [*nats*] who guard the treasure of storms which arise when any body dares to take the gold away. As it was my intention this time to Visit this island, touching at others ["at"] the same time which I had not yet seen. Where however this Island was situated nobody knew in Mergui, and I was obliged to go first to Boukpeen, where lived a Man who knew the road to it. I intended therefore to shape my course in such a way, that I would visit the East side of Domel, Sir Frederick Malcolm's and other larger Islands. I left for this purpose this morning, but could not proceed further than the South end of Madiamacaw, the tide not suiting.

Madiamacaw, opposite to Mergui, is one of the best cultivated spots in the whole Province, it is only since the British occupation, that plantations of Arecas had been laid out there, they augmented rapidly, so that the greatest part of the available suiting [suitable] soil is taken possession of; on its South end is a Gnapsin [*ngapí*] Village, which like all establishments of this kind, can scarcely be approached by Europeans on account of the pestilential atmosphere around. At noon, I proceeded through the channel of Pereghuum. This Southern Channel will probably never be a practicable one for larger vessels. From Machampa [Ma San Pa] across lays ["lies?"] one great flat uncovered at low water extending near to the Northern most part of Madiamacaw. If there be a passage deep enough for larger Vessels, it is certainly very narrow and intricate, it appears therefore that all [page 22] Vessels coming from the South destined for the port of Mergin, will be obliged to pass round Tungs [Kings] Island.

February 8.

The Morning, I spent at the Napin [*ngapi*] Village of Pereghium, with the purpose of prosecuting there information discovered last December towards Machumpa, and found that it is indeed an uninterrupted bed. The people of the Village were in great consternation on account of the small pox having broken out amongst them. This is the most dreaded Sickness in Tenasserim, whose ravages amongst the Children annually carry a great number off. As well known, Vaccination had been repeatedly introduced, and as repeatedly failed, so that the Natives have lost all confidence in this most Valuable human preserver. What may be the cause of this repeated failure. I am unable to detect. It must have its reason in some unknown endemic cause, much more as vaccination has succeeded amongst the Malay Natives to the South, and in Bengal in the North. From Pereghum, I continued my course to the South West, passing several small unnamed Islands, landed at a greater one near the Southern extremity of King's Island to examine the formations, and then crossed over the Kings Island at the basis of Kappatoung, where I had not been before. Found the same primitive formations at [as] last time.

February 9.

Went to the South of Kings Island, and landed at 9 o'clock in the Morning, at another isolated Island to the East of the Doun Archipelago, called Yingam. Khyum by the Burmese. This Island is frequently Visited by all Burmese who go to Sea on account of the numerous and good rattans with which they fit out their Boats, before starting, they use them also generally instead of the ropes holding the Mast, and when fresh, they answer perfectly well that purpose. The formation of the Island was slate with Superincumbent land ["sand?"] and iron finding ["?"] stone. The most elevated point will exceed not much more than 250 feet. The Island is covered all over with forest, the North bluff point excepted, with a protracted beach stream ["strewn?"] with [page 23] rocky fragments. From Yingam Island, I proceeded towards the South to Domela Islands, Northern most point. We could not however reach it, but were obliged to halt at a rocky granite islet ["granitic islet?"] to the North, the Sea went very high scarcely the Sun was down—a Storm broke loose with a rapidity which is well known in the bay of Bengal, and made the Sea swell with phosphorescent waves. Our little fragile barks were in danger amongst the rocks. The Wooden Anchors would not hold, and we were driven towards

the Shore. The people worked with great perseverance at the Oars for two hours, to keep from Shore. Happily these squalls do not last long. After half an hour the Storm ceased, the Second boat however was driven upon a rock, and there lost its rudder._

February 10.

The first necessary operation in the Morning was to make a new rudder, for which purpose parties were sent in the adjoining woods to find a certain kind of Timber growing at its base in the form of broad boards such a tree was fortunately found; a board made by nature cut out of the tree, and with but little preparation with the dah or Burmese knife, transformed into a rudder; this took a part of the day, after which we went on the East side of Domel down to the South. The Island of Domel is twenty Miles long to the South of it are three Islands separated by narrow Channels of a few hundred yards breadth, which apparently belong to Domel showing exactly the same formations as the latter Island (graniti) In one of the Eastern Bays of the first Island, we remained for the night.

February 11.

Went along the Eastern side of the three Islands to the North of Domel, and entered the narrow channels to convince me that they were separated. Between Domel and that to the North, the Channel in one place does not exceed 70 yards, between this and the Second a little more. Between the Second and this again there is a channel about $\frac{3}{4}$ of a Mile, to the East of it 7 rocky islets are strewn, which guard the [page 24] entrance; the tide rushes with Violence through these openings, all is granite with Hornblende and Veins of green Stone, which intersect the granite I examined the formations minutely, in hopes of finding tin, but in Vain, the granite was also of a different Variety, transiferous [“?”] granite as far as I observed has no hornblende substituted instead of [“mica?”] one of my people had to day a misfortune. During the time we halted one of the Burmese discovered a bees nest upon a branch of a tree. All the natives are exceedingly fond of honey, and as it is very abundant in the forest (three different kinds of Apis yielding it) they have ample opportunities of satisfying their appetite. The man ascended the tree without apprehension, knowing it to be the nest of a small stingless bee, which produces the best honey [“Scarce!”] was he half the tree up, when he fell with a loud cry down, people ran to his assistance,

but returned shouting to fly to the boats as a firebrand was seized enveloped with dry grass, so that it gave abundant smoke, and so the people Ventured again to the assistance of their groaning companion Chimlung up became ["had came!"] inadvertently upon a nest of wasps. These devour the honey of the bees, and the bees themselves are therefore frequently to be found in the neighbourhood of their nests. Off [Of] all the Wasps of the Country, this species is considered the most dangerous, and feared more than Snakes or any other poisonous Animals. The poor man was stung upon his back, but by two or three, had however, to suffer for it at least 8 days he got fever and Vomitous. The people applied Chunam with Seasam Oil upon the Wound. That the danger is not exaggerated by the Natives proves, an example of a man in my Service who was employed to Shoot Specimens of ["for!"] my collections. He saw a wasp nest, and out of sheer joke fired into it, the man was not quick enough to be off, the disturbed Wasps reached him, one stung him on the lip and two on his throat, his head swelled exhorbinantly, and he died the third day in the hospital in consequence of suffocation. We remain this day in a Bay, between the North East point of Domel, and the first Island (unnamed.)

[page 25] **February 12.**

Proceeded along the Eastern Shores of Domel to the South Domel is here Separated from Kithiraing to the East by a Channel which may be about four Miles broad, but all this is a flat mud at low Water extending an uncovered, about 10 Miles long, and Several Miles broad, chiefly towards the North. At low Water a channel of about one Mile remains for Vessels to pass through. It seems to be an intricate passage but is used by Chinese Junk coming from Penang.

The Eastern Shores of Domel are mostly covered with Mungroves, and therefore with difficulty approachable. I did not land there but continued my course, until I arrived at the first of the Elephant rocks._

Masses of pure crystalline limestone, rise at once out of the Waters, and elevate themselves to the height of many hundred feet, they appear unexpectedly, for round about is not a Vestage of limestone rock. The[y] are solid Masses full of crags and pinnacles with Scarcely any discomposed Soil, yet not without vegetation. The plants growing upon them are partly different from those found on the adjoining Islands, a proof that geognostic conformation has a great influence upon

Vegetation. Cactus appear through bushes, all has more an African appearance. The basis of these remarkable rocks, is washed out by the Waters so that it appears at low water, as if they stood upon a dangerous undermined pedestal. They are like all limestone rocks, full of stalactitic caves which pass through the Mountains near to their top like immense chimneys. I landed at the Second of them, and attempted to climb it up; but the rocks were so sharp that they cut my Shoes to pieces. I mounted however a hill of 150 feet elevation and found on the other side, a crater like basin full of water, which stood in communication with the Sea by a Subterranean passage. It was full of fish of a trout like appearance._

These rocks yielded, according to tradition, some hundred years ago, a most considerable revenue to the Siamese Government. [*page 26*] Their Caves were then filled with edible birds nests, since that time the Swallow had gradually left it, and at present the Northern rocks are entirely deserted. The Southern rocks yield an unconsiderable quantity. It is in consequence of the Swallows not finding any longer their congenial food and building Material in the neighbourhood, that they leave the Vicinity, and settle in other places, not because they are too much disturbed by man._

The Northern rocks afforded no anchorage. We proceeded therefore to the Southern rocks where a small safe Bay is said to exist. The Northern face of the Southern rocks is nearly Vertically ascending several hundred feet, and their appearance, and the Vegetation upon them altogether producing a different effect from all that I had hitherto seen in this Archipelago.

February 13.

In the morning, I found myself in the small Bay, of the Southern Elephant rocks group. Several limestone masses ascend abruptly out of the Sea altogether, seven or eight which at a distance look like one Island, full of turrets of Gothic architecture._

Little vegetation is upon these rocks, except in the Clefts, and to ramble over them quite impossible. Upon the Island where we landed, we found a hut with ten Malays watching a birds nest Cave. The Cave is accessible only at ebb tide, at high Water the entrance is shut up, yet the Swallows can enter and leave the Cave by Chimney like openings in the rocks some hundred feet above the Water. The Organs of sight must be peculiarly constructed in these Animals, for it is pitch dark in the Caves,

and the nests built in preference in the most dark recesses. The Malays were employed in making ladders for the gathering of the nests the first collection of which was to take place in 8 days. Nature to make it easy to them has made bamboos grow upon the Island with thorny strong appendages, which they cut and transform into ladders with steps. The Water did not permit me to visit the [*page 27*] Caves. The Malays who watched them, came from Penang they have bought them for one Season for 800 Rupees from Dalty Inan the man who has farmed them from Government. Their quality is inferior. No white nests are produced here, which seems to corroborate the affirmation that the Swallows are able for a certain number of years only, to construct nests of the finest quality in ones, and the same place, and they leave it after having exhausted the material, which the adjacent Sea furnishes._

The Malay made here what is called Garum and what forms one of the delicacies in the Eastern Archipelago. They dug out of the ground a great number of Shell Fish, (*Tellina*) which occurred here in great abundance; and prepared them in what manner I do not know but they assured that this species yields the best Boccasars, and that they sell it in Penang. They had already several large Jars filled with it._ The Burmese seem not to be acquainted with this substance (at least it is not known in Tenasserim) which is so much esteemed by the Dutch in Batavia as a Sauce &ca. &ca. and which is said to excite the strongest appetite, and to assist digestion in an eminent degree. From the Elephant rocks we sailed in a Southerly direction to a large Island, about 12 Miles distant, and reached it at Sunset.

February 14.

The Island is unnamed, some Burmese call it Alernaug Khina, others give that name to another Island of the same size to the South of it, which in Captain Ross' Charts is called Sir C. Malcolm's Island. As that Island is not unimportant, I will define it more positively South, about 6 Miles of the Southern most part of Kitheraing, West by North of Seading, about 12 miles._

North and East from Boukpeen River entrance, about 17 Miles._

North by East from Sir C. Malcolm's Island, about 6 Miles South East from the Elephant Rocks about 12 Miles. The Middle of it is due East from the Southern most point of Domel._

[*page 28*] The granitic formations cease at once upon this Island,

the stratified rocks appear again resting upon a base of Micacious shist [?] there is a great variety of them alteration [“?”]. That for which the Island is important is its richness in iron. There is a small island to the South of it, which is covered all over with iron ore of good quality. Following up the ore on the opposite side, I found it extend a long the Shore for about a Mile. It is compact red iron ore, partly fibrous red iron ore, partly clay iron stone, what I have said in other places can also be applied to this locality. All the iron found, has the appearance of a pseudo volcanic product, in some parts it resembles outwardly lava, possible and altogether [“?”], the best idea of these iron beds could be given, if a stream of melted iron be supposed to have rolled over foreign formations, to have carried them along in its impetuous course partly melted, partly unchanged such is the iron breccia of this Country blocks of many hundred weights having some times pure oxyde of iron, and some times full of other admixture. The Tenasserim Provinces along can with great facility cover all the demand for iron, of which Indian until now has stood so much in need; continued after my examination to go towards Boukpeen River entrance, and arrived not far from it, late in the evening with a favorable wind._

February 15.

I was obliged to touch at Boukpeen River, because in that Village it was said, resided the Man who knew best the locality of the gold Island. I therefore sent up the River to fetch him, and remained at the entrance waiting, mean while I made an excursion along the sea to examine the formation. The Sand banks which Surrounds Boukpeen permit at low Water but few excursions. The rocks in many parts of the Coast when they consist of Breccia or Iron conglomerate so common in this Country are all perforated by numerous Pholas. Their operations are going on constantly, and the rocks in many parts, are so cellulous that they crumble to pieces._

The assertions of celebrated Naturalists that the Pholas Shell fish came into the stones before their induration could easily be negated by antaspy [“autopsy?”] in [on] my [“any?”] [*page 29*] part of the Coast in Tenasserim. The Slum [Shan, Siam?] guide for the gold Island came in the evening, and immediately after we quitted._

February 16.

The Island was said to be far in the West, almost parallel to Boukpeen, without knowing whither, I was going, I left myself to the

guidance of my people, who promised themselves mountains of gold from this excursion. Going now to the West, we could but proceed slowly, the Wind blowing at this Season mostly from North West, my people worked very hard, and arrived towards the Evening at Sir Charles Malcolm's Island, which is about 15 Miles long and in no part exceeding two miles in breadth._

It being low water at the time of my arrival, I had no ["an!"] opportunity of collecting a great number of interesting Marine Animals. Not to be obliged to throw them away like last time. I made a small bamboo raft on which I fastened the Zoophytes, and dragged it along with the boat, keeping it at a distance, that the pestilential stench might not be detrimental to my people.

Madreporen were rather scarce on this Island, the more however of beautiful Sertulamia Cellularia, Phumatilla, Flustra, &ca.

February 17.

Went along Sir C. Malcolm's Island Western side, which is less rough than the Eastern, and seems to possess some delightful nooks for cultivation. Iron again appears there but not of that good quality as that of the unnamed Island to the North._

In the middle of the day, we crossed over to a small Island, which is nothing but a reef covered with Sand and broken particles of Shells, which has attained the height of about 15 feet, and is now covered with Vegetation part ["?"] scarcely that my people had landed, I found them dispersing with great alacrity over the whole Island, each armed either with a pointed stick of hard wood, or the ramrods of my Muskets. They were all going to look after turtle eggs not unsuccessfully for after an hours digging they brought together about two thousand which were received with acclamations of great approval by the other people, for turtle eggs are with [page 30] full right considerations one of the greatest delicacies to the Wearied Mariner. In their research, they are attentively regardful to Copy ["?"] the train upon the sand which the heavy turtle leaves, when dragging herself back into the sea. Finding this they followed it up by the sand bank, and boring into the sand with their pointed sticks, the degree of firmness, or moisture of the stick from perforated eggs, are their guides, after which they begin to dig with their hands, and discover generally from 90 to 130 eggs in one hole._

The Eggs which were round, or rather flattened like an orange, and

about one inch and half in diameter, and their taste was superior to those eggs, which I formerly tasted in the Salween river, where the sand banks frequented by turtle are regularly farmed out by Government, I enquired from what kind these eggs came, and received the answer that they were the Eggs of the *Chelonia imbreuta* [*bricata*], the most valuable of all, which yields the celebrated tortoise shells, and which are sold at such an immense price in Singapore, the Chief Market for this Article in the East Indian Seas._

This excited in me the idea, whether it were not impracticable to watch the time of their breeding to mark the places to surround them with a small inclosure which would prevent their hastening into the Sea, to take possession of them, and to establish banks on the Sea shore, in which they would be deposited, fed, and left to grow until the Shells had attained the proper size. The rocky reefs were covered with Myriads of Zoophytes that I could not deny myself the pleasure of observing them the next morning and remained therefore anchored for the Night, before this little Island, shortly after dusk, the trees of the Island began all at one gust to move, and many thousands perhaps I may say, some hundred thousands of flying foxes ["!"] [flew] into the air, and made for the adjacent terra firma in uninterrupted columns.

February 18.

The basis of the rock upon which the Marvellous world of Zoophytes *Mallusia* [*Mollusca*] Crustacea was iron, conglomerate amongst the many thousands of Islands, not one reef owes its origin to the architecture of Madrepores. In fact [*page 31*] it is certain there exists no Island entirely formed by these Animals they are only capable of erecting a Superstructure upon the basis of a solid substratum, until it reaches the level of the low Water. How singular were the perforated Perities species the Cuss [cups?] form *Gurgophylla* [*Cariophyllia*?], Anthophyllites, the beautifully colored *Millepora Violaccia*; how extraordinary the *Agaricia* which had the appearance of Muselaginous effusions &ca. &ca. On very few Islands such a rich assemblage of the greatest variety of forms will be found than on this I remained occupied till the middle of the day_then we made sail, and reached the Southern extremity of Domel, being in great want of Water, my people were afraid to follow up the great rivulet, leading through a Valley, on account of tigers, they lighted torches and made a great noise with dried bamboo sticks, they returned without having been harmed to the boats._

February 19._

From Domel we went over this morning to Bushby's Island. This about 3 Miles long and as many broad is, properly speaking, nothing but a tinge [large?] rock, whose sides descend abruptly into the Sea on four Corners. Its interior is with difficulty accessible, presenting nothing but Slopes, Clefts and Chasms. It is throughout covered with high forests. With difficulty I walked, a Mile about, on its Northern Shore until an abrupt bluff point put an end to my excursion, went on after breakfast, passed through the Channel between Domel and three Islands to the West of it, (name unknown.) Found upon one of them on the Sea beach, a solitary dog sent a Canoe to fetch the poor animal, it fled however in the Jungle, was informed that it must be a Seelong dog, which has been left either by accident or purposely on the Island, that in such a case the dog always goes a hunting into the forests and never perishes, that though it leads a Wild life for several Months, yet when his Master touches at the Island, it mixes as freely again with the family as if it had remained always tame with them. The Seelong dogs are exactly the same, as the common race in Burmah and India Hysia [Syria?] and Arabia, whether they descend from the course ["canis?"] [*page 32*] primevous of Hogson, or the Geddkkhsinis ["?"] of Sykes or of the C. Sumatrensis of Hardea must remain as yet undetermined, they may as well descend from the Jackal whom they mostly resemble, after all, and with whom they congregate in numbers as observed in Apeles [?], and in Spain deserts remained for the night at the Northern most of the three Islands near the South point of Domel._

February 20.

During the night started with favorable wind and in the Morning I found myself on the South West of Lord Wm. Bentinck's Island, a weather beaten Coast; on the South of it, is the remarkable perforated rock and little above it rocks of Massive quarry ["quartz?"]. Following to the North West, these are three isolated Islands, the outermost of which has on its West side a famous edible Swallow Cave. On the inner or Eastern Island is a spring the only one it is said round about. There we breakfasted and found ten Malays who are proprietors of the Cave, with whom I went afterwards to look at it. This being one of the outer Islands the Surf beat already violently and threatened to swamp my canoe; we entered the Cave with the Water which penetrates several hundred yards

into the remotest figures [fissures] of the rocks, and every new swell causes a thunder like noise, issuing from the dark corners. The Cave itself is pitch dark, only the opening of the and the reflection of the blue Waters believed ["behind!"] the entrance lights some what a part of the Cave. There the people had erected a great frame work of bamboos upon which they climb the highest parts apparently with danger of their life to collect the nests which are attached in the most dangerous recesses of the rocks. There must have been many thousand swallows, and many more thousand bats to judge from the confused noise, reaching the ears from the platfod [platform?]. The bats are said to live in amity with the Swallows, and are for this reason not disturbed. After having satisfied my curiosity I joined again the boats, and we went to the extremity of the last Island, ["?"] these however were so considerable, that we were obliged to seek shelter on the East side of it where we remained for the night, the more so as a heavy thunder storm raged [*page 33*] in the neighbouring Island of Domel._

February 21.

Passed the whole day along the West side of Lord Wm. Bentinck's Island, to the North to be able to cross to Fletcher's Island with the next land breeze, Lord Wm. Bentinck's Island is one of the most picturesque of all seen in the Archipelago, but it will be found to be one of the most improductive. It is nothing but rock, and the commonly luxuriant Vegetation is more stunted than usually. Its lofty lacerated pinnacles, its steep wands ["walls!"], its sharp indentures, its curious Caves are highly attractive._

It belongs in my opinion entirely to the Jma ["Jura"] [Jurassic?] and Lias series its limestones resemble. Portland limestone, Lithographic Stone or P. [blank space] limestones combrash included which alternate with Superior Lias sandstone, and has slate, in some parts the limestones disappear entirely, old red standstone also was found (color red brownish with fragments of Grauwaske [Greywaske] and Micalamina ["?"])._

February 22.

The next Island where we had to go following Captain Ross' charts, was Fletcher's Island, it was at least 20 Miles distant from Lord Wm. Bentinck's Island and full 70 miles to the West of the terra firma, so that it was rather a matter of consideration to Venture so far in our open boats.

The weather was however, after the last days Squall plain as a Mirror, and so we went on in search of the gold Island of which site I was as yet ignorant, and with ["which?"] it was said was still beyond the next Island. A favorable breeze brought us there in the course of 5 hours. We passed between the two Islands, Fletchers and Sir John Hayes and remained in the North West side of the first in a small Bay in which the surf did not beat with that mighty Violence as it did on the East, and North sides of it. As far as I could see, both Islands were of Massive granite, Mountainous, thickly covered with high forest trees, the Vegetation very rigorous ["vigorous"]. Fletcher's Island is about two Miles long and one broad. Sir John Hayes is about five times that size. It was at the bottom [page 34] of the Sea in 5-6 fathoms that I saw for the first time the beautiful Gorgonia Antipathes or the black coral. It roams ["forms?"] only on the outermost Islands of the Archipelago. It is never found above low water mark. The Seelongs are some times persuaded to dive after it, and sever, or rather lift it up from the bottom, upon which it is attacked with the dahs; seen in transparent Water it looks like a Mass of highly magnified hairs under a microscope. The largest pieces obtained are 6,,9 feet long their Value is not known to the Seelongs I once obtained a parcel of it about 50 pieces from 4 to 9 feet long and $\frac{1}{4}$ of an inch broad for 6 Rp. People of Mergin occasionally work it into different Articles of Ornament. For the purpose of making bracelets and footings out of them, the people rub the Coral Violently with flannel and pour Cocoanut Oil over it, repeating the process several times, and rendering it feable in this way. Amongst the great number of Zoophytes which I had opportunity to observe, I never found the noble red Coral (Iusholulis) [*Isis nobilis?*] they seem therefore not to occur here, for wherever they are, small broken particles are always to be seen in the Sea Shore. (In number on the African side of the Mediterranean) amongst the outer Islands there is also found at low water, a larger shell fish furnishing Mother-o'-Pearl Shell of the finest quality._

February 23.

The promised Gold Island was finally in Sight, it was the great Western Torres, the outermost of all Islands of the Mergin Archipelago, eighty miles to the West from the Mainland in latitude 11° , 48° and 49° . We had a favorable Wind, and arrived there in good time this Morning. Fortunately, that the Sea was quite calm, otherwise our approach would have been extremely difficult.

It is composed of two large Islands, divided by a Channel of perhaps 800 yards width, the Eastern Island has on its Northern parts two other small Islands like centrals ["?"] [sentinels]. The Torres is a huge granite block which rises out of the Sea, deep Water surrounds it on all sides. The Sea is in a high degree [page 35] transparent 6 feet long turtles of the Species Chilonia Mydas swam in great abundance thereabouts. The Eastern Island is larger, and on its North West portion is a beautiful small safe bay, which to find there I was surprised. It has the best anchor ground, soft white Sand, which gradually shallows towards the Shore, permitting Vessels to anchor in 7 fathoms water at 200 yards distance from the Shore. It was well sheltered on all sides, and only part of the entrance to the North open. Shortly after our arrival, I of course, made instantly for the expected gold place, which was said to be formed at the bottom of a rivulet descending from the Mountains. The Story of the gold turned out to be nothing but a Story for instead of the gold there, was nothing found but glittering Mica._

February 24.

Not satisfied with this, I endeavoured to-day to penetrate into the interior, following up the rivulet, my reporter said that a basin exists near the Summit from which the rivulet issues. The Rivulet itself, however, lost itself soon, amongst the rocks covered with beautiful ferns and armus ["?"], and instead of a lake like basin the top was found to have a narrow crest, sending sloping branches in different directions. The whole Island was covered with forest trees, the Vegetation similar to that of the other Islands.

The Island though uninhabited, must be frequently Visited by man. Not only that we saw fire places still with heaps of ashes and fragments of baskets, boards and spears on the Sea Shore. There is also a road which leads to the forests where people cut rattans &ca. Nay, even large trees are felled from whose hollows honey had been extracted with some pains on enquiring who could land here, in this sequestered spot, I was given to understand that independent Malays from the Southern part of the Peninsula, and from Sumatra annually go to the Andamans, there to collect Sea Slugs they [sail] up in their fragile barks from Island to Island, until they reach the great Western Torres, that they repair here their boats, [page 36] and take in fresh water, and cross over to the Kaffli Khum, the Burmese name for the Andamans, which they can reach

sometimes with a favorable Wind in forty eight hours; these people they added were reckless adventurers, pirates by profession, who plunder every Burmese boat they can get hold of, and kill every body on board but for a few Rupees. This was the reason why the people entreated me to be well armed, before I ventured amongst the distant Islands. On the Nicobars, the Andamans and some of the outer Islands of the Mergin Archipelago lives according to the narration of the people the Loowoon, the Monkey Man, which can be no other animal, than the gigantic Sumatran Ourangoutan described the first by Dr. Old never seen afterwards living of which, however skulls were brought to Calcutta again last year, one from Borneo, the other from Sumatra. The description of the people agrees pretty well with Dr. Old's narrative, they make the animals only still much larger than it is in reality (7 to 8 feet high). To-day wandering along the Sandy beach of the Island, I saw foot prints which looked like those of any stout man, the people declared instantly that they were those of a Loo Woon, and to prove their assertion they added, that this Animal always goes with a toe, inverted, and in fact the thumb was not to be discovered. The foot prints were however, some days old, and a little obliterated, so that I cannot Vouch for the truth of this assertion._

February 25.

After having visited the Torres Islands, though not finding the promised gold, yet gold to have seen it, I thought to return, much more as my steers man urged me to hasten and profit by the fine weather as it was not impossible, that in the event of boisterous Weather we would be shut in for eight days or more without being able to venture out in our open boats.

Of the great Western Torres, the discovery of the Well sheltered Bay above mentioned merits general publication._

[*page 37*] Though the Island is not in the immediate track of vessels sailing between Calcutta and Singapore, yet they might frequently be obliged to pass close. Their knowing that in the event of the appearance of a Storm they would find safe shelter place, may be not unimportant to them.

We sailed with a favorable wind back to Fletcher's Island, where we arrived late, in the evening, and remained for the night.

February 26.

I wished to see a little more of Sir John Hayes' Island and Shipped along the Eastern side to its Northern most point. There is a small Bay which has some Historical interest, where it was in the time of the Burmese sway, that the Malay Pirates had their rendezvous and brought together with [“?”] Burmese and Siamese Captives for Sale. These poor persons kidnapped along the Coasts of the Peninsula were then made to sit in a row for exhibition upon a large trunk, which has notches made, indicating the places they were to occupy, such a trunk is to this-day to be seen in this Bay. Piracy has entirely ceased along these wastes, and the Malays have withdrawn to other less known quarters of the Indian Seas. From Sir John Hayes, we crossed over to observation Island which lies full fifteen Miles to the North East of it. We arrived there in the evening and had great difficulties on account of a Violent Counter-Current passing through the Channel formed by Observation and Courts Island; found however a shelter in a Bay on Eastern side for the night._

February 27.

Observation, Courts Criddles, and the other Islands to the North, are a continuation of Lord Wm. Bentinck's Island their formations belong to the same series. They are weather beaten rocks full of indentures, steep sides, and narrow Valley's their Western side is generally exposed to the Violence of the Surf, their Eastern side is surrounded by a smooth Sea, Lord Wm. Bentinck's Island there, and the Doun Archipelago, to the North and the great barrier opposed to the impetus of the Sea, [*page 38*] from the West, beyond these to the East, the Waters are smooth, and the whole Scenery altogether more Lake like. The people had again to show me something particular occurring on one of the outer rocks of Observation Island, which is considered a talisman amongst the natives I went in a small Canoe to look at it, and found the catredral [“hexahedral? Hecatohedral?”] Iron pyrites, whose bronze yellow, made them appear to be gold, they were crystallized in tubes, and isolately disseminated on the surface of the rocks. This Second Gold search might have proved nigh fatal. The Surf beating Violently caused a great swell, our Canoe was suddenly reached by a Wave, Shipped Water, and filled instantly. We were about 30 yards from the Shore and swam for it, the Surf took hold of me and dashed me with Violence against the rocks, which were covered with

Ostrea Greyphaea, and Pectae, and I was all bruised and cut by the knife like edges and sharp spines of the Shells, I succeeded however to climb up the rock, before the next shock of the Surf, no body perished, my Burmese people clung to the Canoe, and others came soon to our assistance._ I was brought into my boat, out of which, I could not move for the next three days. It was necessary to extract the species ["spines?"] of the Ostrea and Pectens, and I had about 50 fragments sticking in different parts of my body. It is remarkable that these species do not cause any inflammation, like other strange bodies penetrating the skin I have of that time several remaining, over which the integuments closed and which do not molest me the least.

February 28.

Remained in the Northern Bay of Lloyds' Island._

March 1.

Came as far as the Southern part of the Doun Archipelago and crossed over to Yingan.

March 2^d.

Reached Mergui through the Channel of Perighuum.

V VOYAGE

From the 7th to the 16th March. [1839]

Mr. Hutchinson of the Madras Artillery had been sent by [*page 39*] Mr. Commissioner Blundell to Lennya with a number of Coolies to sink an experimental shaft in search after Coal. He did not pretend to have any geognostic knowledge, and I thought to be of some use to the common cause by insisting ["visiting?"] once more the Coal site on the Lennya River. I left Mergui the 7th of March, travelling over the same ground while [which] I had already described in my 2^d Voyage, and reached the Coal fields the 12th of March, Mr. Hutchinson had sunk 2 shafts before my arrival, each above 30 feet deep. The first was in an intervenient small place through which the River now runs, between two Hills. The place between the two Hills composed of secondary formations, had been subsequently filled by tertiary and deluovian materials, and in at the depth of forty feet, nothing but marly and clayish deposits had been found, and removed.

Mr. Hutchinson then sent another shaft through the Coal slate where he came upon Coal Sands, low [Coal sandstone?], so hard that he was obliged to use power [powder?] to break it (some portions resembled Levant [?] grit) small veins of bitumeous iron clay slate sometimes of the thickness of a few decimeters ran irregularly through the sandstone. In another par[t] Coal itself enveloped in bitumeous iron clay slate not thicker than $\frac{1}{3}$ of an inch was already found in a vein, but the shaft could not well be continued in that place, for it was but a few yards from the River edge, so that at the level with the river the water penetrated and could not well be stopped with the imperfect instruments then at his Command.

I proposed to Mr. Hutchinson the sinking of a third shaft, at a greater distance from the Water edge in the same formation, after which I left the place, returning to Mergui where I arrived the afternoon of the 16th of March.

VI VOYAGE

It was my intention to visit the Southern frontier of the Tenasserim Provinces, chiefly for the purpose of examining the Pakchan River, [*page 40*] about which so much had been spoken, and of which so little positive was known, and which yet could be of great political and commercial importance at some future period. For this purpose, I left Mergui the 26th [20th] of March, in two Common Burmese boats, and went up the Tenasserim River, 11 Miles as far as the Pagoda of Zhai-gna Toun. There is the Middle of the three great openings of the Tenasserim River into the inner Mangrove labyrinths which leads in a direct way to the South, and is the shortest passage for boats with Oars._

March 21.

Passed through the Mangrove labyrinths and came into a spacious bay part of which I had navigated on a former occasion, and which is famous for the great quantity of fish congregating there. It would be a Valuable source of sustenance and profitable article of commerce if there were but a population to use it.

Remained the night at the Verge of a second labyrinth of Mangroves, which lies between Kitherang to the West, the Main land to the East, the Lennya River to the Southward, the just described basin to the North.

March 22^d:

Passed through the Second Mangrove Channel, took in Water at the entrance to the Lennya River, and halted the night at the first promontory to the South, what Captain Lloyd calls Whale Bay._

March 23rd:

Reached Lodeing [Sedeing] and stopped there. Lodeing is a Settlement of Malays established by Mr. Maingy whose comprehensive mind conceived the idea of peopling the uninhabited Islands of the Archipelago with Malays.

For the purpose he made choice of a Chief named Dalta Inan, an intrepid old Buccaineer, to whom the resources of the Mergui Islands were well known, and to those [whose] directions about 100 Men obeyed. This little clan was transplanted to Sedeing where it remained ever since, but diminished rather, instead of increasing, though the Old Chief, (who has also farmed the birds nests Cave from Government) seems to prosper, yet his Men have foresaken him; some have [page 41] have returned to their Old beloved trade Piracy; some set up for themselves in Mergui, and some are said to have settled on the Andaman Islands. If ever the Islands were to be peopled by means of Government, the introduction of the Malays seems to be recommendable not on Account of their turning the soil into use, no [for] they are very indolent planters, and cultivate the ground only when forced, but as fishers, Mariners, boat builders—in fact for occupations on the Water, which is their element, they are the proper race. Sedeing is said to be badly chosen for a Settlement, and I believe so far a flat surrounds it on all sides, and scarcely permits an approach at low Water; the ground is also bad, and even Cocoanuts it is said grow but slowly. Perhaps all this is a pretext to excuse the Jungle, which springs up round every house, and to account for the total absence of cultivation in the Village. It consists of about 30 Miserable truts [“huts?”] on two sides of a Bill [Hill]._

March 24.

Passed Boukpeen entrance and anchored the night at a small rocky Island to the South of Boukpeen, calm, the people at the Oars the whole day.

March 25.

I visited five of the Rocky Islands this morning, which are so abundantly, and apparently without order, Scattered in the Koyay group, a most interesting but very intricate aggregation of Islands extending from 10°, 41' to 10 North latitude their formations present great Varieties, and to name them, would be but too tedious in this report. They being altogether more than a hundred in number. I determined to spend a few days amongst them. To day, I confined myself to the smaller rocks, collecting chiefly Shells amongst the rocks under Water, between the Clefts is to be seen the Colossal *Iradacna gygas* [*Iradacna gygas*] whose well preserved Shell is one of the great curiosities in Europe; and which

attains, though not commonly, to great size in these seas, specimens being found 3 – 4 feet long, these remain commonly at a depth of 8 – 10 fathoms. Smaller ones are abundant even above low Water mark. They are not used for eating, nor are the Shells burnt to [*page 42*] time [lime], like in Coromandel, there are two [too] few people to care about the riches of nature._

March 26.

To-day we landed at the Upper great Kogay Island, I do not exactly know the length of it, for I had not time enough to circumnavigate it; it appears to me to be, about 10 Miles in length. It is not much elevated; a claim [“chain?”] of mountains run through the midst of it, I wished to traverse it, after having penetrated about 10 Miles and passed over a Hill not 200 feet high, I came upon Mangrove Jungle, and then upon a deep creek, which I could not pass and therefore returned again. The verge of the Mangrove was thickly studded with Palms (Phoenix) I have not seen it in fructification) this is the Palm, which yields the general Cordage amongst the people, and appears to be in its substance the same with Coir made from Cocconut fibres, only with this difference that the fibres are much longer. It is employed by the Seelings for manifold purposes. They fill with its slender trunks, the upper part of the body of their boats, which render them extremely light and buoyant, and they use it for caulking, for which purpose it is preferred by the Chinese to other fibres. Before using it, it is steeped in Water, and then beaten upon a Stone until all other parts are beaten off and the string of fibres remain._

March 27.

There is in latitude 10°, 50' in land a great high range of Mountains, which looked from the Sea so inviting, that I could not resist the desire of attempting to reach, and if possible, to ascend it. It was with my means and time and [“a?”] chimerical enterprise, and I lost two days in the attempt. The first difficulty was to place a foot upon terra firma, for, approaching the main land, there is such a Mass of Mangrove Islands, that there is no end to be seen. It will cost much before these labyrinths will be surveyed. The Worst is, that this part of the Country is entirely unknown to Burmese, as well as to Siamese, and that I could not obtain any information after having passed with the Boats four hours through the Mangrove Channels, [*page 43*] I thought to have arrived at the main,

and I remained at the foot of a small Hill for the night several of the remarkable Past [?] Asiatic Hylobates (an Ape with long arms and white shaggy hair black face) were assembled upon the trees, rather a rare occurrence, as these animals live generally solitary in the thick woods of the main (on the outer Islands I have never heard one.) They howled most pitisusly [piteously?] down upon the strange intruders as if deeply lamenting that they were about to lose the privilege of being left alone and undisturbed in their never visited wilds._

March 25 [28th].

Penetrated into the forest in the morning after breakfast, worked hard through rattans, creepers, and climbers, and found after three hours toil, that we were not upon the main, for we came upon a deep nullah about 100 yards broad, separating us perhaps from another Island. We retraced our steps, and after some trouble not to lose ourselves in this Sunderbund like Canal, reached our Station at Koyay. Not the researches of one Naturalist, but the swell of population at some future period overspreading the Country will throw the peculiarities open to universal knowledge, I may here just ["as?"] well mention, that Elephants seldom cross over to Islands, but that their marks are instantly perceived, when arriving on terra firma. Had I been more attentive to this seldom failing criterion, I would have at once prognosticated that we were as yet not upon the main.

March 29.

From this upper Koygay Island we proceeded today to the Southern. There is a Canal of some what more than two miles breadth which divides the Southern Island from the Northern, through which the tide rushes with violence. The Southern Koyay appears to be about 6 Miles long on the Western side. To the South it is divided from the Main (it appears at least to be the main) by a Channel, a Mile broad in its narrowest part. I went with the Canoe along the Western side of the Island to South point, and returned towards the evening to my Station, which was upon a small rock to the West of it. This rock of conglomerate and had no [page 44] more than forty feet of circumference, yet there were upon ["it!"] 19 Species of plants all perennial mostly trees, others climbers._

March 30.

From here almost uninterrupted down to the Packchan iron ore of good quality is to be found, partly on the main, partly on the little Islands not distant from the Main. It rests almost universally upon a clay slate formation I had been too unwell today to make an excursion, and remained quietly upon my isolated rock._

March 31.

Removed to day to the South 8 Miles, to a promontory strewn over with blocks of iron clay conglomerate stone was still unwell, and could not Venture to go out and visit the Country. This place had been indicated to me as interesting, on account of a town having stood here 80 years ago, and that Siamese Officers superintended from here the pearl fisheries which extended across the Channel now called Forres[t] strait over to the Islands called the Gregories and from there to the East Coast of Sullivan's Island._

April 1st.

Sufficiently recovered to venture upon an excursion. No [To?] vestiges to be seen of the Siamese Town mentioned yesterday. A Sandy flat shore to the North, all covered with Jungle. Near the Western point there is about a hundred yards from the Sea Shore a Sweet Tank, it is formed by a low cross ridge of iron conglomerate which prevents the accumulated water to fall into the Sea. This place is called Pouleygaw [?] or the Pearl Tank, and it is said that all the collected pearl shells were brought in the first instance to this place, were counted, divided into lots then left to rot on the sea beach, guarded by King's Officers, the lots then sold without knowing how much pearls they might contain, so that it was as chance lottery, apparently still less in favor of the buyers, as pearls of a certain magnitude were considered the property of the King, for which purpose the Superintending Officers were appointed. For what reason the pearls were brought into the Tank, I cannot conceive, they could not live there, because it contains sweet Water. This Water of [page 45] the Tank accumulated only during the Monsoon, it has no Springs of its own. At this Season it had divided ["dwindled?"] down to an inconsiderable pool scarcely 15 yards across, all the rest was dried up or swampy. Many of the wild beasts of the forest seem to congregate here to slake their thirst, found numerous foot prints of deer, elk, hog, wild cow, Elephant and Tigers, most of which quite recent.

The Sea Shore on the Main will scarcely have to boast of any Shell fish, it is an extended flat, at low Water uncovered, which extended to the North, and to the West about a Mile Seawards, and the pearls are known to occur but on rocky ground in a depth of from 1 to 12 fathoms. The proper pearl fisheries were in this Channel, on the Gregory Islands, and on the Eastern side of Sullivan's Island. Some [of] the places [were] pointed out to me a [in] calm weather [in] a small bay of the latter Island, and what I saw were pearl oysters, they were so thickly at the bottom, that they nearly covered it. The Seelongs know the Value of pearls and gather them wherever they can reach them without much diving they are fond of the Shell fish, eat it in great abundance, and heaps of the true shell of the Margaritifera Noleibs ["Nobilis?"] are seen on the shore of the Lampee Islands. They sell the pearls to the Chinese, I saw one in Mergin coming back from amongst them, who had pearls to the Value of about 400 Rupees about his person, of some of which were equal in water [value] to the best which I had seen in the Persian Gulf brought from El Bahneen.

April 2^d.

Went about 6 miles to the South, where I was attracted by blocks of excellent iron ore, scattered or thereby studded about the Sea beach on the main. We steered into a small Bay and anchored there, before I returned from a short excursion of two hours, the Sea had already receded and left our boats sticking in the mud without hopes of extricating them to-day. To profit by the time as much as possible, I endeavored to penetrate into the interior, and was more successful than last time. After crossing a narrow belt of Mangrove about 100 yards broad, I came in a rising ground covered with [*page 46*] thick forest abundant with rich humus Soil adopted for cultivation. I crossed a small ridge of Hills, and came on the other side in another plain covered with venerable never touched forest. I ["A?"] rivulet descended from the high mountain chain which rose abruptly to the height of 2,000 feet at a distance of about 10 Miles in land, numerous herds of Elephants must migrate through these solitudes, they have found ["formed?"] broad roads in all directions. To ascend the mountains was not my intention I ventured therefore towards the evening to the Sea._

April 3^d.

Went close on shore to the South, and landed opposite the Turret

Rocks on a beautiful Sandy beach ornamented by some Majestic Casuzina [casuarina] Trees. The immediate Sea Shore was here destitute of forest, and I was told that it was purposely burnt by Malays. It is now a Sandy plain beyond which begins again a Mangrove belt extending some Miles in land before the land rises. All being plain for several Miles to the East, it is not improbable. This Sandy plain could be well adopted for Cocconut plantations. It [fish?] swarms close to the boats. On that place I found a Malay hut and 12 Malays who watched the birds nest caves on the Turret Rocks. These I am told yield the finest quality of nests in the Archipelago.

April 4.

Was again obliged on account of indisposition to remain the day quite in loco.

April 5.

To the South of the picturesque Turret Rocks are two groups of small Islands surrounded by extensive reefs. They are nearly united with the Main by an extensive flat which is only to be passed at high Water, and swarms there with fish, there is not a soul to use it. These islands are again rich in iron ore of good quality.

This Southern iron formation extends from latitude 10°, 10' almost uninterrupted to latitude 10°, 30' twenty miles along the Coast, and extends to my knowledge 12 Miles to the West, for the great reef of Pine tree Island is mostly covered with solid blocks of iron. This immense quantity of iron on the immediate water edge, certainly merits the attention of Government.

[page 47] April 6.

Went on foot or in a Canoe slowly along the Coast the Boats following. A little to the South of the reef Islets is the mouth of a river. This is the Kazeinlu Khiaung, where shortly after the occupation of the British, a Village had been established for the sake of collecting the stream tin found in its bed out of some prejudice suddenly left the place and settled afterwards at Boukpeen which I have already described. All the rivulets in this region coming from the mountains, carry tin along with them. This and the rich Siamese tin Mines of Knowing and Takopah being in the neighbourhood determined me since the last days to proceed, but slowly on to trace if possible the tin on the British side. Here

I must mention one observation which I found throughout to be applicable respecting the situation of the Stream tin deposits._

The main range running down from Tavoy to the Packchan, at a distance of about 15 Miles from the Sea (not the dividing range which separates the West and East River territories of the Peninsula) this is the seat of Tin Mines of this Country. All mountain systems have one abruptly falling side, the other more gradually descending so also this range. The Western face is the abrupt side, Tin is to be traced but in small quantities, the Eastern or in land side is that which contains mountains of debris in which the tin ores are buried. This I found to be the Case ["on the!"] Eastern side of the Tavoy mountains towards metamio, so according to tradition it is the case with the mountain range near the Packchan where on British Territory 200 yards ["years!"] ago, the richest tin Mines were worked, which by the constant funds ["feuds?"] of this unfortunate Land went to ruin, so that the locality is even unknown or at least doubtful. To examine satisfactorily this much promising tin District, it would be necessary to penetrate in land to the East side of this mountain range, a very difficult enterprise in this totally unknown region where no provisions are to be obtained, where even the passes leading to it over the Mountains must at first be discovered so much promising this undertaking [*page 48*] were it is too late to be attempted this year.

7th April.

Went again along the Sea Coast, the whole day and stopped the night, at a small Island called Pulo Mipali (Malay, the Burmese names having ceased here altogether) It also contained iron ore of good quality.

Hundred thousands of Pigeons of a particular species peculiar to the Southern Islands, never seen in the latitude of Mergui, nested upon this Island, the high trees were literally covered with nests in all of which were eggs, no young ones were to be found, a proof that they arrive here all at once, and begin to breed at the same time. The people collected heaps of these eggs, and the disturbed pigeons continued to swarm in clouds the whole night round their invaded homes._

8th April.

We continued our course in the night, to the South without stopping, and arrived in the evening at Pulo Jeankos not far from the entrance of the Packchan River._

9th April.

Pulo Jeankos is one of the Northern most of a granite group of Islands, perhaps twenty in number, which lay across the wide extent of the Packchan River, embedded in a flat of mud, which at low Water scarcely leave narrow channels to pass through; my people called it Nuni [?] Thimbo Khina because the Steam boat Diana anchored here. At the time of the first inspection of the Tenasserim Provinces after their occupation some called it also Ca Joopeng Khium, because some Siamese or Malays contrary to the custom of these people planted a number of Cashew Nuts (*anacardium occidentale*) at the Southern point of it which grew up since that time to large fruit bearing trees. I know not more of it than that it possesses a rivulet with excellent Water, which forms pretty Cascades as it falls down from a hill at the beginning of the rising of the tide we left it for the purpose of navigating the Packchan about which river the most conflicting notions had hitherto been spread. It being the frontier River of the English possessions to the South the Southern most limit of the Tenasserim [*page 49*] Provinces on the Main is in latitude $9^{\circ} 58'$. On the Islands (the group of St. Matthews by universal consent belonging to Tenasserim) the Frontier is to be sought some twenty Miles to the South, which probably will never become a disputed point, altogether Islands being unoccupied by any power or people. The opening of the River is very broad, from one point of the Main to the other, it may be about 8 miles across. The proper bed of the Packchan when it begins to be enclosed between two ridges of Mountains is about 2 miles in width, and continues for 10 Miles running in a South East direction, and forming thus the Southern most British boundary with a narrow Peninsula. In its lower part it may more adaptedly be called an arm of the Sea than a river. We remained on a small rock on the River, on its Western or right side some Miles from its entrance._

10 April.

Went up the river about 7 Miles, and landed at one of a group of Islands which seems to block up the River, but have ample space of the Volum[e] of its Waters on the left side. There is good Water on the Island and Vestiges of Men (cut timber fragments of instruments, utensils, recent fire place, &ca.) were observed which show that people frequently land here, we found however during the day not a Soul, nor saw a Canoe or any other thing which could denote human existence. After having

taken in Water continued to row up the River, saw to the Right and left openings where apparently other rivers run into the Packchan. Behind these Islands the river comes directly to ["?"] from the North in a straight line of about 10 Miles. The Mountains recede on both sides the prospect is open. The Country through which the River runs is but recently recovered from the Sea, not long ago it must have been abroad basin; all is filled now with Mangroves, which at spring tide are as yet quite inundated. Numerous creeks prove that the Mangroves have extended ramifications, without effecting a landing, we were obliged to cast Anchor on the Mangrove shore.

11th April.

At the end of the reach, running directly from North to [page 50] South, the banks arise, though not yet covered with Phygophora they soon give way.

The region of the Nipha palms begins, and no where did I as yet see the Nipales in such abundance, and in such perfection as on both sides of the Packchan. These are unused there only on the verge of the River that ["?"] few of these had been cut by the dah. Had I not known that a Town (!) at least a human settlement is to be found higher up the River certainly I could have perceived no signs of mans abode along the whole course. The Country remains open plain, on the right side small isolated Hills appear there another Mountain at a place where a not inconsiderable river falls into the Packchan it is the last. Higher up both sides as far as they eye could perceive, are level. The river makes some abrupt turnings its turnings grow shorter it narrows to about 150 yards, its Water is but little brackish transparent green, the banks gradually rise the Mangrove disappears, finally also the Nipales Calumie occupy their places, and another graceful Coconut resembling palm. Colossal Wood Oil trees become common, like on the Lennya. Both rivers have an equal Appearance. At the place I remained for the night and day the banks were already 15 feet elevated._

12th April.

Saw the first people before starting in the Morning two boats filled with Siamese without holding much conversation they passed, we learnt the Town of Packchan to be but a few Miles higher, went up the River to the Siamese Town Country continued to be level on both sides of ["?"] the

banks grew gradually to the height of 30 feet, river narrowed, continued however to be very deep, (3 to 6 fathoms) little current. On approaching within an hours distance of the town, I perceived that the forest had been recently cut on both sides of the River, sometimes 1000 yards inland. No old plantations were seen. Arrived at Packchan, gave order to land on the right or British side to prevent collisions with the Siamese, and bivouaced [bivouacked] there under my tent. Opposite to me lay a large Junk of about 250 Tons and five or 6 other Coasting Vessels, several hundreds of people assembled on the Sea there and [page 51] and gaped at us Silently. I heard the tom tom in different directions. Shortly afterwards a chinese arrived with two half grown boys, and said some what impertinently he was sent to enquire what I was, what I wished, and that I must instantly come before the Governor. I answered him that I will come when he politely invites me, though he has nothing to say to me as I am a British Officer and on British ground, and what I further wish, I will let him know through one of my men._

I then instructed Sadue my Siamese interpreter, and head man in the Government Service to go over to the Siamese Governor, and make him my Salaam, that I came here to look at the British Country, that I am in want of provisions, that I would be obliged to him by letting me have some._

Saduek my interpreter returned in about two hours and reported that my arrival had created sensation, that the Governor could not conceive, what I had to do in such a wild Country, he first denied and afterwards doubted that the opposite side was British, that however he was very polite, I shall have all I desire, finally he expressed his wish of seeing me, for which purpose he intended did ["?"] to invite me suitably shortly afterwards the Kara woon or next in rank a Siamese, came with a few followers, and invited me to come over to Myowoon who was assembled in state on the water edge in a Zayat. I complied and crossed over, I sat down on the two velvet cushions arranged in forms [front?] and had a talk with the great one which was as empty as possible, I avoided as much as possible touching upon any political questions, he was very desirous to manifest with words the sensations of friendship and good will which exists between Siam, and Great Britain, not only from the part of the King, but also regarding him individually that he knew Colonel Burney, that he came only to this Jungly place at the express wish of his Royal Master, to bring the people to Order, that he wished to render the

Country flourishing, that it is his [*page 52*] intention to plant Sugar Cane on a large Scale &ca. &ca. formerly there stood a few huts in this place, it has always been a very unconsiderable hamlet, and has been but lately made a central point from which he arrives [“the armies?”] of the King of Siam have been sent against the Malay rebels of Queda; only a fortnight ago 60 Elephants and a detachment had been dispatched from here to the South. The issue of the Malay insurrection but [“was?”] then expected with great anxiety and its extinction with badly disguised apprehension. For this reason also, higher authorities had been expressly dispatched from Bankok to direct the affairs in this quarter. Many of the Siamese Slaves brought over by force to the Peninsula to fight against the exasperated Malays had left their standards and considerable numbers were said to be hidden in the adjoining Jungles. The Governor himself is a Chinese, the King of Siam has a particular predilection for that Nation, and several of the most important posts are filled by Chinese. This man does not understand Siamese, our Conversation was carried on in a great round about way myself talking Burmese which was interpreted into Siamese [“Chinese?”] and this again into Chinese [“Siamese?”] [Note: I believe Helfer wrote it correctly and the EIC reviewer is mistaken. Ed.]

This personage was desirous to show off all the Asiatic pomp which was at his Command in this sequestered spot. He himself was dressed in Silk and Gold with the red Chinese Jcabin [Jacobin?] Cap upon his head his National tail in a true Spanish netted Marelllo bag hanging on one side. He presented Tea, Betel, and Tobacco in Silver Vessels during the interview. The Zayat was ornamented for the occasion with Spears, Shields, Sabres, and Muskets, amongst which was exhibited a quite new beautiful London made double barrelled gun which he shewed me with great satisfaction. How it reached him I could not well understand._

Outside the Zayat there were about a hundred ragged looking body guards with drawn Swords or old Muskets, also some pages and eight shield and club bearers. Instantly after the interview a Messenger was expressly sent off to Bankok, to apprise the King of the extraordinary arrival in Packchan [*page 53*] adding my name, occupation, purpose &ca. & ca. During my stay in the place, the people were permitted to see the white stranger, amongst whom were several Burmese captured in their infancy who thought this a good opportunity to implore me to release them from Siamese bondage. I recollected [collected] as much information as possible about the Country between this and the Eastern

Sea or Gulf of Siam. The substance of the information gained is the following._

1. From this [town] to Cinfoon [Chumpon] it is a days Journey and from Cinfoon to the Sea another days journey for a Messenger. People usually go three days, if heavily laden 3 ½ days._
2. The different Townships are now united, and the Country under the Orders of the Myowoon of Packchan._
3. The Country from this to Cinfoon is uninhabited but from Cinfoon towards the Sea, Villages and Towns are to be found._
4. There is a low mountain chain which runs from North to South, separating the two river territories, but it is broken, and from Packchan to Cinfoon the road leads by a pass or Chasin [chasm] through the Mountains.
5. The rest of the Country is level or little undulatory.
6. The River Packchan and Cinfoon do not meet that ["but?"] their respective Sources are not far distant (one man interpreted 8,000 hin [?] , another said 3 hours journey.) Both Rivers are there inconsiderable rivulets, the Cinfoon River is Navigable for Boats from the Town of Cinfoon from about 18 Miles distant from Packchan, and is a considerable River when falling into the Gulf of Siam. There is a Port at the mouth always frequented by Junks all communication between Bangkok and this is carried on by Vessels, touching at that Port.

[Note: Helfer did not include an entry for '7.']

8. There has been recently repaired an old road from this through the Pass and to Cinfoon (whether lower [*page 54*] down also I could not understand) 36 feet broad. On this road Elephants, war Stores, and Men were transported from the Sea to this place._
9. There is no direct road from this to Bankok over land, but there is no Natural obstacle to make one.
10. The Burmese Captured in Mergui Province shortly after the occupation of the Country by the British, were led [on] this road to Bankouk. To this information I may add immediately above the Town of Packchan, the river divides in two Branches, one retains the name of Packchan and is that which runs to the East and comes in close contact with the conform [Cinfoon] River. It is shortly beyond the City, but 15 yards broad. The other branch is called the

Kara River, it is the main stream which comes from the North, and whose sources are said not to be far distant from the source of the Lennya River. It is a rapid stream._

The Navigation begins at Packchum town, the tide rises during the Monsoon ten feet high._

April 13.

The Siamese Governor having sent me the promised and desired provisions (a dozen fowls and some rise [rice]) I returned again down the River. I would have greatly wished to proceed up the Kara River, but this would have excited too much the jealousies of the Siamese; and I no doubt would have found obstacles, which to over come, I had not the means and not the intentions.

14th April.

During the night, I was awakened by my Interpreter reporting that several Siamese boats had clandestinely approached during the night, and that the [*page 55*] people wished to spear me. The Siamese Governor's desire was to be assured that the right side of the Packchan was British Territory; they had always been told the British Frontier to be to the North of the Kazeingslo River that they were extremely desirous to come over, and throw themselves under British protection, that a great number of fugitives were hidden hereabouts in the Jungles, people driven by force from distant parts to fight against the Malays; that the Yoke of the new Governor was unsupportable &ca. To this day ["they?"] added the information that the British side is very rich in tin, that several of them knew the best localities, that a River, the Maliwan Khaung leads to Tin Mines superior to those [at] Tokopah.

The rest of my Voyage offered nothing remarkable, I went [*page 56*] over the same road back to Mergui where I arrived the 21st April._

VII VOYAGE._

My last trip before the Monsoon was to the nearly [“newly”] discovered Coal locality on the Tenasserim River, about which I have sent in a Special Report._

[Note – this page of the IOR document then continues with Dr. Helfer's first voyage in the Archipelago, dated 28 November 1838. The entry has been moved to the beginning of this transcription to observe chronological order.]

[*page 101*]

Memorandum

The original Report of Dr. Helfer having been mislaid by the Asiatic Society, the Copies of it have not correspondingly been examined._

[*end of document*]

**DIARY OF THE VOYAGE TO THE
ANDAMAN ISLANDS
ABOARD THE SCHOONER *CATHERINE***

“Dr. Johann Wilhelm Helfer's gedruckte und ungedruckte Schriften über die Tenasserim Provinzen, den Mergui Archipel und die Andamanen-Inseln.” *Mittheilungen der Kaiserlich-Königlichen Geographischen Gesellschaft*. Franz Foetterle, ed. (Wien; 1859); pp. 380-390.

Translated from the German by Jim Potter

13th January 1840, Sunday

A new chapter begins. I have given up the small boat trips and will sail in a ship which, God willing, can take me anywhere. With much tinkering we brought all things happily on board. If God gives me his blessing, then it will work and it must work. Self-conquest is noble; only through struggle with oneself does man become perfected. After this self-sermon, after making several well-defined resolutions, and after I beat myself down inside and on paper, I feel better. That is to say, I feel more satisfied.

I have achieved my will. I have departed, though scarcely one mile from the wharf, we are at anchor. It is nine o'clock in the evening and the crew have gone to get something they forgot. Of great deeds I cannot say anything yet.

14th January 1840, Monday

In the morning, I get up and go out to wash myself. During the night I heard noises and fighting. Then I hear what I had already half-heard, that two boats were lost in the night. Favorable wind, but we cannot profit from it. A canoe is sent back to buy a boat.

We used the time to put our ship in order. All cans are arranged again; all the stores are put into my cabinet, because onions, etc. are very aggressive goods.

The canoe comes around nine o'clock and brings a second "Seelen-tränker", which will be dangerous to land. Well now! We lift the anchor and go until about eleven o'clock, then the wind dies and the tide is against us. We lay eight miles from Mergui.

At four o'clock in the afternoon a wind rises again. At first we go very slowly, then the wind gets stronger. The sun goes down. There is only moonlight, and we go between Kings Island and Iron Island with heavy wind. I lay down to sleep.

I cannot sleep. The ship moves so violently that I will soon be thrown out. Finally such a heavy fall comes that everything in the dormitory crashes together. I get up and see that we have therefore raised the storm sails. We had the narrowest passage between the two islands behind us. It is moonlit, but everything is shrouded in dense fog. A peculiar phenomenon takes place : it is very quiet, then suddenly a gust of wind comes which rushes with gale force. Three times the ship was completely on her side. God be thanked that I was never surprised like this on my boat trips.

We go on until about midnight when we drop anchor in the shelter of an island. So much do I hear and see from my bed, half-dreaming, half-awake.

15th January 1840, Tuesday. Cabosa Island.

The storm raged at intervals throughout the night. When I got up in the morning, I saw it moving in brief puffs. The sea was relatively calm.

The wind gradually dies around eight o'clock. The island, at which we are on the western side, is the Little Canister. The ship is pulled in to 100 paces from the western shore. People go ashore in a canoe to fetch ballast.

There is long work with the canoes, and they do not rush. They amuse themselves by setting fire to dry grass on a rock. I amuse myself by watching the progress of the fire, but it does not amount to much.

The island is a syenite rock, overgrown with vegetation as far as possible. Naturally, the trees cannot grow very large. It seems to be merely a mountain ridge. There is no water.

At twelve o'clock we go on and steer straight for Cabosa, about twenty miles to the west. A moderated, favorable wind blew. I felt very tired, partly sleeping, partly reading. We approach gradually. I pick up the outlines of the eastern side.

Half an hour before sunset we arrived. Like Fletcher's Island and Great Torres, it is granite, but the rocks are even bigger. The waves seem

to strike more here. The trees are, as noted earlier, bent all the way to the side and dwarfed in places exposed to the storms.

Wanting to anchor, we find no bottom at 40 fathoms. Sailing along the south side, there is a small bay and sand sandbank. We go there and finally find bottom at 30 fathoms, so throw the anchor. I record a drawing. Cabosa has several mountains and small ravines or valleys, but it is nothing but an isolated rock standing out from the sea. It is very cold. I retire to the cabin. The people have gone looking for water in the moonlight.

16th January 1840, Wednesday

There was a good hiding of a storm during the night; our little boat moved violently in the bay. In the morning I saw even better how rocky Cabosa was. Our people managed to find wood, water and ballast, and I went ashore to see what was there.

Small bay with sodden sand. Small trickling rivulet with black sand, which I collected. Vegetation is the same as on other islands. I walked along the granite blocks. Strange discovery : granite which includes red sandstone, in fact in which snails exist. Granite trapped in granitic paste is therefore arguably one of the youngest formations on our earth. Someone could study the abnormal rocks here. All traces of having flowed. Greenstone pieces often included. On the other parts, two different masses flowed. Granite and syenite with masses of hornblende, one almost white, the latter almost black, forming various figures. Also eurite and albite runs in veins through the granite. Fine-grained granite in rolling pieces is also included in the new granite.

I went back on board at breakfast time. However, the people did not finish before noon. Then we continued our voyage. The wind had greatly eased. We come along slowly, proceeding past a small rock at sunset.

It is actually an adventurous journey to risk the open sea without instruments to find a small island. Well now, God knows whether we will succeed. We want to hope so. We are supplied for five or even six weeks.

Otto is also very ill. A second abscess breaks out on his feet. He can hardly walk.

17th January 1840, Thursday

Because we were on the open blue sea, no land in sight, the waves getting higher, and all night the ship rocking in a considerable manner, I could sleep very little.

Today I was quite uncomfortable all day long. First of all I had some kind of seasickness; i.e., lack of appetite, fatigue. Secondly, I got diarrhea again. I do not know if I should regard it as a salutary post-crisis of my last illness, or a new illness. Anyway, as God wills. If I got sick so far away from medical help, it would go badly. Incidentally, today I had seizures from a rare mental illness : “indifferentism” towards life. I do not mind dying, but I think I will accomplish nothing proficiently, and then I will have lived in vain.

Labor-laziness is always a characteristic feature on board a ship; I did nothing all day except read Prague's *Panorama des Universums* or Menzel's *History of German Literature*.

We had very favorable winds and made 120 miles since last night. If it continues like this, I hope we will see land tomorrow evening.

18th January 1840, Friday

In front of Barren Island. With indescribable luck we found the island. At two o'clock we saw land. We were there before sunset. The crater far exceeded my expectations. It is the most beautiful volcano I have ever seen. We cannot find an anchorage and circle around. This makes such a motion that I cannot write. Incidentally, I'm feeling sick again today. I've deviated into a relapse; God grant that it passes happily; I am very angry.

19th January 1840, Saturday, Andaman Archipelago

The night roared and raged. Our little ship could barely withstand it. I could not sleep as we were so tossed and turned. We dragged our anchor in 50 fathoms. The people could not pull it up. Our *Catherine* took on more and more water. The people had to pump eight times. In addition, it was raining heavily towards morning. I had to make a decision when it became light. I could not get across here; the storm was rising. With a heavy heart I bade good-bye and ordered the captain to go straight to the Andaman Islands.

I was so irritated that I had not been able to examine the volcano that I stayed in bed the whole day. Of course, I had not yet recovered my health, and so looked after myself. The waves had never risen as high as they were today, real mountains towering up, howling.

At ten o'clock we saw land, and at three o'clock we arrived at some flat islands. We sought shelter behind one. The first thing we noticed was

a black Negro Andamanese, completely naked, then a second and several others who seemed very concerned with us as they looked for shellfish on the shore. They did not look smaller than other people; they walked very upright and were evidently without weapons. I watched them until they disappeared behind the bushes on the seashore. The islands in front of us were flat, diluvial; but trained eyes could determine their upper parts. On one side I saw Königsberg sandstone which formed caves, perhaps inhabited by these forest people. I was annoyed that wisdom forbade us to go ashore; how gladly I would have met these specimens of humanity.

We have loaded all the guns and are prepared for everything, but it will come to nothing. How quiet it is in our domicile, as is demonstrated by my writing. We shake as if condemned, but hopefully tonight I will get some rest.

20th January 1840, Sunday, Andamans

A bad night was had again. The storm was raging; it rained constantly; the waves beat upon the poor *Catherine*. Water was pumped out continuously.

God be thanked, today finds me well. Otherwise I'd feel even worse in this foul weather. It rushes and roars and rains, cloud after cloud unloads, an absolute monsoon.

We stayed until noon. No Andaman Islanders to be seen. Smoke rose in various parts of the forest.

At one o'clock we weighed anchor. A difficult passage out. At once we failed, with only two fathoms of water and the water very high. One strike and our poor *Catherine* would have certainly gone to the devil.

We steered to a small island near a rocky reef. No protection behind the island as we had expected.

We continued on and found a beautiful bay where, God be thanked, it does not rage. We are a hundred paces from shore. All is sandstone walls as in Saxon Switzerland.

A quarrel with Otto, who wanted us to land. I said it was not wise to be shot without being able to fight back. The savages had all the advantages over us; we had none, because before I could have discovered the location of a guy hunting me with an arrow, he would have long since disappeared into the bushes. In the open field I'd like to fight against them, but I did not come here to be shot in the back.

21st January 1840, Monday, Andaman Archipelago

The sun seemed pleasant again; the wind still blew strong. I made the intention to return to the small island where yesterday I searched in vain for a landing place. I had the anchor raised, and in an hour we were anchored again off the southwest side of the island in about 100 fathoms. I had my wet paper brought to land to dry, and soon after I went up myself. The island was flat, except near our side where there were rocks made of quader-sandstone rising about 100 feet high. I walked along the shore in the direction of these rocks. The tide was at its highest, and I had to work a path through the jungle. Lush vegetation, some mighty trees. A peculiar tree never seen before, like our strongest oak, from the family of the Guttiferae, a *Calophyllum* in characteristics? The Andamanese probably eat its fruit. The tree was now in fruit, though inedible to me. It sweats out a white, rubbery substance.

The lowlands would be splendid for coconut plantations. Burmese and Malays land on this island. Nearby there are valuable swallows' nest caves. Traces of paddy husks, coconut shells and old thatched roofs. Also a well dug by people. Our sailors drew water all day.

On the shore was a mass of snail shells, which always have loads of flies in their wake. These flies followed us everywhere and became annoying. Each of the people brought back hundreds, and our *Catherine* is full of them.

We worked through the jungle with difficulty. Everywhere are traces of aborigines. I think they are either still on the island or left a few days ago. We found their recent camp sites, fresh ashes, several tools, a hook to bend down branches, and a fragment of a crude pot, so they have pottery. Later, my people found a bow that was extremely clumsy. Also, stones were probably hung as landing signals on the shore. At another place we found pieces of wood, the bark peeled, from which they make their twine.

Also, ships or boats built in Europe must have been stranded or hauled out here. We found several well-worked boards.

We worked our way through the jungles until we came to a rocky outcrop, where I waited for the tide to fall, then I went on. Eroded pieces flat as tables.

Masses of Madreporen form a stone wreath around the island. We came to a cave where the swallows nest, and found about 20 nests of the best quality. People very eager after that. They sell them for one rupee a piece.

Veins of iron-sandstone run through the quader-sandstone. The caves more calcareous. Veins of gypsum?

We climbed along the rocky outcrop until we could not continue. I collected about six new plant species in bloom. A characteristic grass or fern covers the vertical walls.

Plants common in Tenasserim : *Galedupa indica*, octandra man-grove, *Thespesia acutifolia*, *Cedrelae*, *Lettsomia lanuginosa*, *Convolvulus littoralis*, *Menyanthes tenasserimica*, *Pandanus comunis*, *Rubiflos aculeifronsosa*, *Terminalia dubia*, *Bruguiera albiflora*, *L'Heritiera magniflora*.

I returned, very hot; went aboard the ship which allowed me to feel well. At four o'clock all the people returned. I persuaded the captain to go further today. We weighed anchor and sailed to the northwest. It was getting dark; the seas rose up. One can get nervous when steering blindly into the night. Today, however, no misfortune happened to us. In front of an archipelago which I believe is not the main island, we anchored in a depth of nine fathoms. Fires of the Andamanese on the shore.

22nd January 1840, Tuesday, Andaman Strait

Today I undertook to proceed through the narrow strait that cuts through the Great Andaman Island.

The anchors were raised early, and when I got up early in the morning I found that we were already sailing west. We soon found ourselves enclosed; only the opening to the east remained visible. The hills around were all low, some plate-shaped, incised, overgrown with trees, densely populated with mangroves right up to the bank.

We dropped anchor after about six miles, and the captain went aboard the boat to see if the passage was feasible for his ship. During the night, I occupied myself with drawing. At two o'clock he came back and said he would venture it.

The channel soon narrowed to an average of a quarter-mile. The area retained the same character. Many trees were defoliated, mostly *Malvaceae*. The vegetation was by far not as vigorous as in Tenasserim, although everything was thickly clad. Thus I did not see any strong trees which seemed suitable for shipbuilding.

I believe the land, what I have seen of it, is not fruitful. Everything is bare sandstone rock. The roots cannot penetrate. There is a great resem-

blance to Saxon Switzerland, even the frequent echoes. Everything is Königstein in miniature, maybe also a second Burdelroad. The valleys that lie between the plates are usually so low that they are often filled with mangroves.

The channel through which we proceed is nothing but a deep crevasse in the mountains. In most places it is deep enough for the biggest ships. The journey itself was highly picturesque; there will be few such straits; everything has the character of a river.

The current was so strong in one place that it went eight to ten knots. After a sharp turn we came into eddies and whirlpools. The captain became anxious and quickly dropped the anchor. The ship spun around with force before coming to rest. The current tore past us with a fierceness as if we were in a mill. Our situation was very precarious; as soon as the current lessened we lifted the anchor and continued on. The area became flatter, the mangroves more extensive. Rocks appeared. At last, isolated islands formed, which became more and more frequent. Finally we saw the exit to the sea and a wide bay opened. However, the entrance to this was very narrow, barely 50 paces wide.

As soon as we were in this bay, we saw four boats heading for us. The captain climbed into a boat to confront them. He took them for Andaman Negroes and wanted to attack them. On board the ship, everything was prepared for action. The captain fired a musket at a range of 400 paces. The boats approached nevertheless, and it turned out they were Malays who had come from Penang and sought bird nests.

We anchored not far from the shore at the very tip of the bay. Soon afterwards we saw Andamanese, one after another looking out from between the stones on the promontory, all armed with bows, arrows and spears. Some came closer to stare at us and one finally started screaming at us. His voice was quite loud. From what we heard, some believed he spoke Malay, some Burmese. I think he wanted to communicate with us. Three men went up to the shore in a canoe, but soon returned and reported that they had not understood the men. There were three of them, sitting huddled on the ground; one of them had painted his face all white. I think the people were too scared to approach them. I want to go myself tomorrow. Out of fear, they have also raised the anchor this evening to stand further into the bay, to be protected from a raid. Though not 200 paces from the first place, they now cannot find any holding,

which is evidence of how everything is structured and that the roadsteads lie in deep crevasses.

If only they don't run onto a rock in the dark night.

23rd January 1840, Wednesday, west side of Andamans

Today we had a slow day. The captain could not withstand the current yesterday evening because he had no wind and had to drop anchor on the opposite side of the bay. In the morning he wanted to set sail again, but could not get out. He worked his sailors for a few hours and then dropped anchor again.

I ate breakfast and proceeded to the next landfall, a small island surrounded by mangroves. *Kandelia longi fructu*, which grows as 40-foot tall trees in Tenasserim, is crippled to barely fifteen feet high here on the sandstone rocks.

We landed but did not find people. An old, woven, rattan basket was found. Nothing in bloom. I collected about six new species of wood, especially Tenasserim products : *Aurantia speciosa*, *Kandelia longi fructu*, *Malvaceen*, *Litorea trifolia*, *Diadelphina*, *Wendia trifolia*, *Jasminum rupestre*. Returned. It was very hot. Got under way again and came out of the bay on the west side. In the passage where all the natives stood yesterday, we did not see one today.

Outside, the wind died down and what little there was blew straight in our teeth. The land is barely 200 feet high, going almost straight north. No mangroves, much strip-pandanus, much *Menyanthes* with light yellow-green foliage, and a peculiar tree very similar to the Italian pine, with a smooth trunk and a fine transparent crown, standing together in groups unbroken by the winds. In general, an absence of creepers, which is also characteristic.

Cruised around all day; once came near a rock. Saw no natives, but possibly two or three huts in the shadows of these pseudo-pines. Four Malay boats searching for bêche-de-mer.

So far, the wind has not arrived, although it has turned more easterly. Perhaps tomorrow will be more interesting. In any case, tomorrow I must go back to land.

24th January 1840, Thursday

A miserable day, which I will soon close. We had the worst, most contrary wind all day, and at the same time high seas and much agitation.

Could barely approach the shore because of masses of shoals. Since we left the bay yesterday, we have made scarcely twenty miles northwards. Patience.

25th January 1840, Friday

I can attend to this day just as quickly as yesterday. We crossed and tacked and have not made twenty miles.

We are opposite Interview Island, a narrow, elongated, low island that has coconuts. It is full of savages who are said to be the wildest of the Andamaners. The channel, which lies beyond, is navigable only for small boats. God grant that we will go onwards.

26th January 1840, Saturday

Again the old lament. We are banished to the sea, and tomorrow there is no reasonable prospect for our release, and the same wind, the same snail's pace. In the morning we were about twelve miles from land and required until two o'clock in the afternoon before we came on a northeast diagonal towards land.

We were above Interview Island, at a second small island. Between Interview Island and the main island there must be a good bay if it is not too shallow. Our island today was garnished with rocks, so that ships might suffer greatly at night. The island is flat and is said to be full of savages who are very wild. Landing was out of the question. We even had to drop anchor because the captain feared the tide would carry us too far into the sea. Only a half hour before sunset, we raised the sails again. I will soon despair.

27th January 1840, Sunday

I crow the old song. The whole day spent on board, without making much way. The captain went far west in the evening yesterday, and early this morning all land was out of sight. The wind remained contrary and little of it. We crept like snails at one and a half miles per hour. At four o'clock we were so close to land that I could tell we were about fifteen miles north of yesterday's island. So this was the day's work. The land was high enough to see here, a mountain range about 200 feet in elevation, the highest point of the Andaman Islands. All chains run direct from north to south. One consolation, however, is that at sunset the wind has changed so that we can sail straight north—the first time since we've been

on the west side. If it takes until tomorrow morning, out of necessity we will have sailed around the north side.

I was very bored today, in despair reading a novella, Tick's *The Persian Emperor*, and incidentally Hoffmann's geognostic lectures in Berlin, which I liked very much.

28th January 1840, Monday

Still the same as yesterday. Still have not sailed around the northern point. Last night we nearly hit a rock in the middle of the sea, twenty paces away, and our little *Catherine* would have been smashed. Now the captain does not want to go at night. Incidentally, yesterday we made some headway with the north wind, but were driven so far west that today it took all day before we came back near land.

The same elongated, flat islands with coconuts. Some new tree forms that look all the stranger because I do not know what they are.

We dropped anchor because we could only go west, which we want very little. The northern islands are before our eyes. Finally we will come to the end of our trial of patience.

29th January 1840, Tuesday

Finally I have something to write again—meeting with the Andaman Islanders.

In the morning, when I woke up, I found that we were in front of the same island where we were last night. We had no wind at all during the night, and consequently did not make any way. Seeing it thus, I told the captain to steer east, inwards of the island. My pilot told me that on the other side there was a second passage to the north; he had been here earlier when searching for *bêche-de-mer*.

We went in and found ourselves in a broad bay that could be sold to the Madrassis for profit. We first maneuvered east, then north. In the north, a second island closed the bay. In the northeast was an outlet facing northwest. The latter, however, does not seem practicable for ships as the surf extends across it. As we went, we saw three canoes with savages crossing from the east to the island in the north. We arrived 600 paces from land. The savages were evidently filled with consternation about this; together they pulled two canoes vigorously across the sand into the jungle; the third vanished into the northwestern opening. Scarcely had we warped the anchor than the savages began to shout at us. We replied, and

five to seven of them were watching, running from rock to rock, opposite to the ship.

Our boats were lowered; I boarded one to go towards land. I asked my Burmese pilot what was the best present to give to the savages; he said coconuts. I allowed three in the boat to manage it.

A lone savage had the courage to follow our boats, We called to him. He spoke briskly in his language. Naturally we did not understand him. He was without weapons. The others had bows and arrows and remained hidden behind the rocks. He beckoned us to land; we did not trust him. We proceeded to a rocky outcrop. He waded in the water towards us. I showed him the coconuts; he came closer, as close as fifteen paces. We threw the coconuts into the water. He picked them up. He was a younger man, about 25 years old, well-built, medium build, completely naked; genitals prominent, well-formed; only the belly somewhat distended; almost coal-black in color with a little brown; his woolly hair somewhat shorn on the sides, he wore only a kind of woolen crest. For the rest, he was neither tattooed nor painted.

He spoke very eagerly, grinning with his white teeth and laughing heartily. I laughed with him, which made him laugh even more. We gave him to understand that we needed water. He pointed to a spot where to find it. I sent the second boat to the ship and it came back with a big, earthen, Pegu water pot. We threw it in the water. He grabbed it, a second came to his assistance, and we saw that he was getting water.

I went back to the ship for breakfast. To inspire the savages with trust, I forbade any shooting. My Malay captain pushed off from the ship and carried a bowl of rice to the savages. The young savage came full of confidence, emptied the bowl, and brought it back to the stony promontory filled with fresh water. He and one of my Malays came into close contact.

Unfortunately, the pot filled with water broke when the savages brought it back. Nobody wanted to approach this time. They stayed behind the rocks and just stuck their heads out. I wanted to land at the watering place; my people hadn't the courage.

We returned on board. I reproached them for not being men. This seemed to make an impression. The water barrels were taken into the boat and the people dared to land. I followed, armed.

The savages, twenty in number, retreated to a sandy point about 1,200 paces distant. Not a single one remained behind at the watering

place. They pulled their canoe out of the jungle again and disappeared behind the point.

The landing site was enclosed on both sides by sandstone rocks. The shore was full of eroded sandstone caves in which fish and crabs swam. Conches were very common, those of the same formation noted earlier. The pine-like trees and the oak-like Andaman tree are from the family Guttiferae. Pandanus fenced in the entire shore.

I found little new. *Hoyena* hung from the trees. Of ancient plants : *Bromelia tenasserimica*, *Thespesia*, *glauca*, *vitifolia*, *Cesalpinia Verkucka*, *Sambucaria Bentinkia*, *Menyanthes*.

It was horribly hot. My head was burning; after an hour I returned onboard. The people drew water until one hour before sunset.

The savages appeared at the promontory from time to time. I wanted to make another attempt to sit and communicate with them. I went down in the canoe and landed and walked to a spot where only an hour ago smoke was rising. It was a camp, but abandoned. The fire was still smoldering. The shells of the three coconuts I gave them this morning were there.

It stank a lot. The skulls and bones of turtles were strung on cords. We also found children's arrows and bows. The tendons were well-twisted. I looked around everywhere and, detecting no one, I strolled along the sandy shore.

I walked into the forest lowlands for coconuts. There were tall trees of *Guttifera andamania*. A height about 100 feet high was in front of me. I climbed it. Masses of young trees of a new kind, *Dillenia terminaloides*, noted earlier. Mass of fragments from corroded sandstone up to the peak; the soil parched, but full of vegetation.

Our guy posted on guard suddenly began to shout again, "*Kaffri*, *Kaffri*!" He had seen them come out of their hiding place, but none approached.

It was near night; I returned. The captain went once more with a pot of rice to reconcile the people; in vain; they ran away again.

We stayed quietly at anchor for the night. So these are the terrible savages. They are timid children of nature, joyful if nothing happens to them. With some patience, friendship can easily be made with the people.

Otto was on the dog all day. He could not move. He has only sixteen carbuncles to his name. The poor boy out-lasts me; hopefully it will be over soon.

30th January 1840, Wednesday

“Here concludes the journal of Dr. Helfer, about this, his last voyage. The events of the following day, as well as the manner and way of Dr. Helfer's death, are given by the following lines, which we owe to his wife, who at that time remained behind in Mergui, presently Frau Gräfin Pauline von Nostitz :”

“On Wednesday, January 30, 1840, Dr. Helfer resolved to try everything to come together with the savages, who seemed to him harmless and fearful like the Moken of the Mergui archipelago, and to earn their confidence through gifts. For this purpose, accompanied by the captain and eight sailors, he went with the ship's boats to the sandy bank of the island, where the savages had been visible the previous day. Some of them, quite naked and unarmed, watched from a short distance but withdrew into the nearby bushes as the boat approached. Dr. Helfer had rice and coconuts taken from the boat and shown to the savages. However, they not only remained at their distance, but retreated even further back. Dr. Helfer, inspired by the desire to enrich his botanical studies by a detailed examination of the place, and to meet with the savages, walked into the bushes in various directions, giving himself entirely to the interest which the new subjects offered him. Suddenly, hiding behind a pile of stones, a band of savages armed with spears, bows and arrows charged forward at Dr. Helfer with wild cries. He hastily withdrew and soon reached the open sandy shore, where the crew of the boat immediately assembled. Because resistance to the greater number of savages did not seem advisable, Dr. Helfer with his people hastened to climb into the boat, which unfortunately sat firmly on the bottom of the shallow water and overturned in the hurried effort to free it and climb aboard. Now, all sought rescue from the ship which lay at anchor a considerable distance away. They were wading or swimming to reach it, pursued by the savages who shot a lot of poisoned arrows at them. Everyone managed to save themselves except Dr. Helfer. Though as a proficient swimmer he had a great lead, his white suit drew the attention of the savages; he was wounded in the head by skillful arrows. Hereupon his companions saw him sink. For three days, all efforts made by the ship's crew to find him were fruitless. His body could not be found.”

